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GUNSHOT WOUNDS OF THE KNEE-JOINT:

THE CONSERVATIVE OPERATION AT THE CASUALTY CLEARING STATION.

BY

MAJOR RICHARD CHARLES, R.A.M.C.(T.C.).

WHEN Colonel Gray published his first article on the conservative treatment of gunshot wounds of the knee-joint as carried out by him at the base,[1] it was decided to adapt his principles to treatment at the casualty clearing station. It soon became apparent that this procedure was justified, and as time went on and technique improved conservatism became more and more the routine practice. It is now matter for regret that any case requiring operative treatment is ever transferred to the base before operation; results are so much better when operation can be performed within twenty-four hours of the patient being wounded.

It is not proposed to repeat in this article what has already been written on the classification of cases according to the respective indications for amputation, resection of the knee-joint, conservative operation, or expectant treatment, but to confine it to a description of the technique of the conservative operations.

FIG. 1.—Specimen of excised wound *en masse*, operation on third day. A, Shrapnel bullet buried in synovial membrane. B, Point at which the ball entered through synovial membrane. C, Synovial membrane. D, Capsule. E, Subcutaneous tissue. F, Skin.

X RAYS.

Operations should never be attempted without the evidence of radiography when this is available. Accurate knowledge of the position of the foreign body and the extent of bone injury is invaluable in determining the procedure to be adopted in any case. The most useful examination is one yielding a stereoscopic radiograph combined with the cutaneous marking of the position and depth of any foreign body present. Such an examination can usually be carried out with the patient in the dorsal decubitus throughout.

OPERATION.

1. *Bloodless Field.*

Our primary object is the scrupulous excision of infected material from the joint and its surroundings without spreading sepsis in so doing. To obtain this object I consider it absolutely necessary to secure a bloodless field throughout the operation. The first step, therefore, is to apply an Esmarch's bandage from the foot upwards to a point above the knee-joint where the tourniquet is fixed.

2. *Sterilization of Skin.*

The skin all round the knee is thoroughly washed, shaved, cleansed with spirit, and painted with a solution of picric acid (5 per cent.) in spirit. The wound or wounds must then be gently packed with gauze to prevent leakage of infected fluid on to the skin.

3. *Excision of the Track and Wound.*

The whole success of the case depends upon attention to every detail which can contribute to the removal of soiled tissue without carrying infection into fresh tissue. In nearly all cases it is possible to remove the entire track of the missile intact down to the joint cavity without permitting the knife or other instrument to touch the track or the infected surface of the wound. Should such an accident occur, the soiled instrument or glove is immediately discarded. As the field of operation is bloodless every cut of the knife can be followed by the eye, and one is not hampered by the presence of artery forceps or swabs, which, moreover, so often contribute to the spreading of infection. The incision employed for excising the wound varies according to the size and position of the wound, and should always be made with a view to extending it so as to give free access to the joint. Having isolated the wound by an elliptical skin incision, the skin surrounding the ellipse is freely undermined all round; its edges are then protected by oiled silk and retracted. In excising the track the deep tissues are not usually removed to an extent corresponding to the area of the skin incision. The next step, therefore, is to undermine this elliptical area of skin and get close up to the track. So far as the outer portion is concerned the track and wound are now ready for excision, but it is first necessary to carry the incision on one side down through all layers into the joint cavity to permit a view of the deep end of the track. With these landmarks established the tissues enclosing the whole length of the track are excised in one piece. This stage calls for a most patient dissection under severely aseptic conditions, and, being carried out with both ends of the track in view, it entails a minimum loss of valuable fibrous structure.

4. *Investigation of Joint.*

All used instruments and gloves are exchanged for clean ones. The original opening is then enlarged and the state of the joint investigated. Most of the conditions encountered are dealt with below.

5. *Removal of Foreign Body and other Infective Matter.*

The missile may be found loose in the joint cavity. In this case it is removed, and, if no injury is present within the joint, the cavity is thoroughly irrigated, and the joint closed in layers with a view to healing by first intention.

If the missile is found impacted in the bone, and access can be got to it by enlarging the incision, this is done even if it entails division of the tendo patellae. Free access to the joint is essential, and I frequently sever the tendon for this purpose. The site of the foreign body is then isolated from the rest of the joint by gauze wrung out of saline, and the foreign body, together with the portion of bone surrounding it, is cut clean out in one piece. A sharp osteotome and hammer are used for this purpose, and it is important to go deep enough to ensure that no surface of bone is left that has been in contact with the foreign body. The joint is then irrigated and closed.

FIG. 2.—Specimen of large foreign body with surrounding bone cut out *en masse* (Case XII). A, Cartilage found lying loose in joi t. B, Tip of foreign body. C, External condyle. D, The foreign body in cancellous tissue.

When the missile is situated on the side opposite to the wound, and if there is no injury to the intervening tissues, the original opening is closed and a fresh incision made directly over the missile.

Injuries to the Bone.—Grooved injuries are always treated as foreign bodies and excised *en masse*. Small comminuted fractures and chipping of the bone are dealt with in the same careful and thorough manner, the fractured surface being chiselled away along with the adherent fragments.

With regard to the excision of bone, as above described, though applicable to the greater part of the joint surface, there are cases in which it is difficult to apply it to the neighbourhood of the mid-line of either bone in the centre of the joint. Severe lesions in this region often penetrate further into the bone than examination reveals or the surgeon can excise, and in these cases one may feel compelled to resect the joint. However, even in such cases, by reflecting the patella and employing Carrel-Dakin treatment from the start, one can often save the joint. When the bone lesion is small and the conditions

FIG. 3.—Specimen of comminuted patella, with wound and track excised *en masse* (Case IV). A, Lower portion of patella. B, Upper portion of patella. C, Quadriceps tendon. D, Fat and subcutaneous tissue. E, Skin. F, Patella end.

otherwise favourable, the infected area may be curetted and the joint closed after thorough irrigation. Another type of wound presenting difficulty and necessitating a departure from the principles above detailed is comminution, or chipping of the head of the tibia on either side, associated with a wound of entrance through the joint. Excision must then be practised in stages. It is necessary to excise first the skin wound and track in the soft tissues, then reflect the patella and excise the infected ligamentous tissue—usually the meniscus; and, finally, by a vertical incision down the lateral aspect of the head of the tibia, fully expose and chisel away the damaged portion of bone. This done the wound is completely closed in favourable cases, otherwise the bone cavity is dressed with bipp and packed with gauze, the end of the gauze being brought out and the rest of the wound closed in layers (see Case XX).

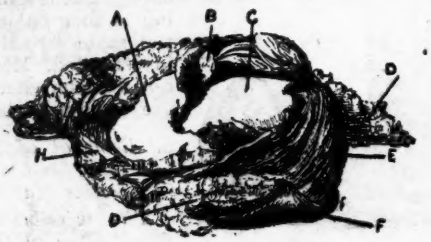

FIG. 4.—Comminuted patella, with wound and track excised *en masse* (Case V). A, Lower portion of patella. B, Fragment of patella. C, Upper portion of patella, completely detached. D, Fat. E, Capsule. F, Skin, including wound. H, Patellar tendon.

When the patella is fractured the comminution is often so extensive as to call for complete removal along with the neighbouring infected tissue. The transverse incision employed for this operation should be made to include the external wound or wounds, so that such may be included in the excised mass. Obviously precaution must be taken to avoid cutting away any serous membrane or ligament beyond the margin of necessity; and even after exercising great care it is often found necessary to lengthen the quadriceps tendon when bringing the parts together again.

In minor fractures of the patella involving the articular surface, such as gutter wounds, or chipping or comminution limited to one side or end of the bone, the portion involved is excised *en masse* by means of a metacarpal saw. Occasionally a transverse fracture is met with and is treated in the same way, both fractured surfaces being sawn away. The fresh ends are then approximated by a purse-string suture of chromic gut round the circumference (see Case VI).

6. *Irrigation of the Joint.*

I invariably use normal saline, and prolong the process for several minutes so as to ensure a thorough mechanical cleansing of the joint.

7. *Transplantation of Fat.*

It has been proved that adipose tissue, when transplanted on to any raw surface, has the property of becoming adherent to it, with little reaction or alteration in its original size.[2] I have applied this practice to the knee-joint in the cleaner cases for filling up a hole in the articular surface. The infrapatellar pad of fat with the attached portion of synovial membrane is usually convenient, and I have found that such a pad inserted into the bony cavity acts also as a plug in arresting the oozing of blood.

8. *Synovial Membrane.*

It is now a recognized fact that when the knee-joint is given a fair chance it can deal with a mild infection, but not so the surrounding soft tissues; therefore it is important to close the joint completely and without tension. In order to do this, the lateral reflection of the synovial membrane has often to be loosened. Frequently, in dealing with a punched-out hole in the condyle, and particularly in case of doubtful asepsis, I have resorted to the following simple expedient for converting it into an extra-articular lesion: Beginning at the edge of the wound, the redundant synovial membrane is undermined from its attachments to the soft tissues and to the condyle all round the hole; it is then closed by suture, so as to exclude the bone lesion from the joint cavity. This is also done with wounds in the suprapatellar region.

Again, in rare cases, where the patella has been removed and the severely lacerated condition of the adjoining soft parts renders it absolutely necessary to close the true joint cavity, the whole of the synovial membrane from the suprapatellar pouch may be brought down and sutured to the synovialis below. A further lateral incision may be required to give access for this dissection.

9. *Closure of Wound.*

The wound is sutured in layers—the synovial membrane by a continuous suture of fine catgut, the capsule brought together by interrupted sutures, and the rest of the wound closed without drainage. In any case in which there is doubt as to complete absence of infected tissue, one or two Carrel's tubes are placed under the skin, in the hope of preventing sepsis. This, however, is seldom necessary.

The dressing is applied with a firm bandage and the tourniquet is then released. Finally the leg is put up in a Thomas splint.

ILLUSTRATIVE CASES.

The following series of twenty consecutive operations has been chosen because, thanks to the courtesy of medical officers at the base, I am able to give some account of the subsequent progress of all of them. In looking over the records of 50 consecutive cases (including this series of 20), I find that there were three deaths. Case XI was one of these; a second was due to septicaemia on the third day, and the third resulted from general sepsis due to multiple wounds. In only one case to my knowledge was a subsequent amputation necessary.

Many of these cases were operated on during periods of high pressure in the casualty clearing station and were transferred to the base within twenty-four hours with apparently no harmful results.

CASE I.

Pte. W., Canadian Infantry; rifle bullet wound, January 2nd, 1917, 11 p.m.

On admission there was a gutter wound across the middle of the patella with fracture; no effusion into the joint. I decided that it was a case to leave alone; the wound was cleansed and dressed, and the leg placed on a back splint.

Operation.

On January 3rd the wound was very septic, and the joint painful and tender. At 10 p.m. the patella was removed *en masse;* the joint, which contained semi-purulent fluid, was washed out with saline; the suprapatellar pouch was undermined, brought down and sutured to the synovialis below, thereby closing the true joint cavity; the quadriceps tendon was brought down and sutured, and the operation completed by closure of the capsule, and the wound without drainage. On the following day the area of the skin incision was red and inflamed; the stitches were removed and the parts treated by the Carrel-Dakin method. On January 8th there was slight superficial sepsis only, and on January 25th he was transferred to the base, the wound looking clean and healthy.

Base Report (a General Hospital).

Temperature normal since admission; wound healing rapidly; no joint infection. Transferred to England February 5th, 1917.

CASE II.

Cpl. B., Highlanders; wounded by shell fragment on January 6th, 1917, at 12.30 p.m.

On admission there was a small wound of entrance on the antero-internal aspect of the knee, with a large effusion into the joint. *X* rays showed two foreign bodies impacted in the inner head of the tibia. Multiple wounds of the leg were also present.

Operation.

The wound was excised and enlarged, the joint laid freely open, and the patellar tendon divided; both foreign bodies were removed, and the joint washed out with saline and completely closed without drainage. The wounds of the calf were laid open, infected and destroyed tissue was removed, and the post-tibial artery ligated; Carrel-Dakin treatment. He was transferred to the base on January 21st.

Base Report (a Canadian General Hospital).

Knee-joint looks well. Operation wound over front and internal part of knee-joint healed. Leg, large granulating wound, perfectly healthy. Transferred to England February 26th, 1917.

CASE III.

Pte. H., Cyclists Corps; wounded by shell fragment on January 8th, 1917, 9 p.m.

On admission it was seen that the missile had entered over the external condyle and traversed the suprapatellar pouch; *x* rays showed it lodged in the vastus internus muscle. There was a severe compound fracture of the middle third of the tibia of the same leg.

Operation.

At 10 p.m. the wound of entrance was excised and enlarged in the direction of the missile obliquely across the suprapatellar pouch and the joint laid widely open. No bony injury was found; the position of the wound of exit from the joint was noted to be at the top of the pouch; the skin incision was continued in this direction, and the wound in the synovialis along with the adjoining track and missile in the vastus internus excised *en masse*. The joint was washed out with saline, and the wound closed without drainage. The compound fracture of the tibia was treated by the Carrel-Dakin method.

On January 18th the knee-joint wound had healed by first intention; the stitches were removed, and he was transferred to the base.

Report from Base (a General Hospital).

Knee wound healed by first intention; no fluid in joint; result perfect. Leg wounds healing rapidly; a shell fragment found in subcutaneous pus pocket. Marked for England, February 5th, 1917.

CASE IV.

Pte. B.; wounded by shell fragment on February 5th, 1917.

On admission next day, through-and-through wounds on each side of the patella were found; both were dirty; *x* rays showed comminuted fracture of the patella.

Operation.

On February 6th a transverse elliptical incision was made and the patella removed completely, including the wounds of entrance and exit, *en masse*. Pieces of clothing were removed from the joint, and it was washed out with saline; the synovial membrane of the pouch was undermined, brought down, and sutured to the synovialis below; a flap of quadriceps tendon and vastus internus muscle was reflected downwards to close the gap completely, and finally the skin sutured without drainage.

On February 11th there was slight superficial skin sepsis; a few stitches were removed, and Carrel tubes placed underneath the skin. When transferred to the base on February 25th there was no joint infection.

Base Report (a Canadian General Hospital).

March 5th, 1917. Some pus from the wound in front of the joint. Carrel's tubes placed *in situ*. March 9th, 1917. Lateral incision inner side of joint; large cavity communicating with the wound in front; salt-packed. April 5th, 1917. Joint looks well, no pain, wound nearly healed. Transferred to England.

This pus pocket was apparently deep to the quadriceps, and was no doubt due to infection during the primary operation.

CASE V.

Pte. G., Canadian Infantry; wounded by shell fragment on February 13th, 1917, at 9.30 a.m.

On admission there was a wound of entrance only, on the top of the patella; the joint was very distended. *X* rays showed a foreign body in the joint, with fractured patella.

Operation.

At 4.30 p.m. on the same day a transverse incision was made, and the patella and wound removed *en masse*; the foreign body was lying loose in the joint; the quadriceps tendon and the capsule sutured. The wound was closed without drainage. In this instance the synovial membrane was not brought down from the suprapatellar pouch. The wound healed by first intention, and the stitches were removed on February 25th. When he was evacuated there was no joint infection.

No report was received from the base, but I heard from the patient that the wound was doing well.

CASE VI.

Lce.-Cpl. M., Canadian Infantry; wounded February 22nd at 7 p.m. by a bomb.

On admission he presented multiple wounds of the knee-joint, and there was considerable loss of skin, with a large exposure of the antero-external surface of the joint. *X* rays showed a piece of metal impacted in a complete transverse fracture of the patella, also local injury to the external condyle and metal fragment higher up in the thigh.

Operation.

At 11.30 p.m. an oval incision including both wounds was made; infected tissue was excised with considerable difficulty in avoiding reinfection of the wound. The fractured patella was exposed, and by means of a metacarpal saw the upper and lower fractured surfaces were resected, leaving both ends with an even surface; the two portions were approximated by a purse-string suture. The injury to the condyle was next investigated, and a punched-out hole found communicating with the joint by a fissure through the articular surface; this injury had been produced by the foreign body seen by the *x* rays higher up in the thigh; the hole in the bone was chiselled out, the joint washed out with saline, the synovialis was reflected laterally, loosened, and sutured, leaving the resulting cavity in the condyle extra-articular; finally, a plastic operation on the skin was done to effect closure of the wound.

On March 12th, when he was transferred to the base, the wound was healed by primary union; no joint infection.

Report from Base (a Canadian General Hospital).

Wound healed and looking clean; patient in good condition. Transferred to England March 26th, 1917.

CASE VII.

Pte. P., Canadian Infantry; wounded on March 1st, 1917, at 4.30 a.m., by a bomb.

On admission there was a through-and-through wound, the entrance over the external condyle, the exit above the patella. *X* rays showed the upper portion of the patella comminuted.

Operation.

At 2 p.m. an oval incision was made, including both wounds, which were excised in one piece with a portion of the quadriceps tendon; the upper third of the patella was resected, the joint washed out with saline, and the wound closed in layers.

He was transferred to the base on March 12th, the wound being healed by first intention.

Base Report (a Canadian General Hospital).

Treatment: Dry dressing; stitches removed. March 29th. Transferred to England in good condition, "for special orthopaedic treatment."

CASE VIII.

Pte. E., Fusiliers; wounded on March 8th, 1917, by shell fragment. Both knee-joints were penetrated; on the right there

FIG. 5.—Case VI, before operation. A foreign body is impacted in the lower half of the fractured patella. The missile higher up produced a punched-out hole in the external condyle with a fissured fracture into the joint.

FIG. 6.—Case VI, after operation; shows also the fracture of internal condyle. This photograph, taken on the twelfth day, shows some separation of the patellar fragments.

FIG. 7.—Case VII: comminution of upper third of patella. Damaged bone excised, sawing from within outwards and well below infected tissue.

FIG. 8.—Case VIII: radiograph showing foreign body in internal condyle.

was a through-and-through wound across the anterior surface of the knee; track running deep to the patellar tendon; the joint was very distended. On the left there was a wound of entrance only; *x* rays showed a large piece of metal impacted in the external condyle.

Operation.

On the same day both wounds on the right were excised, including a portion of the patellar tendon, in one mass; no bone injury was noted; the joint was washed out with saline, and completely closed. In the left knee the wound was excised and enlarged; the missile was located in the cancellous tissue, and cut clean out with a portion of the surrounding bone; the cavity was smeared with bipp, filled with a fat graft, and the joint completely closed.

Both wounds healed by first intention, and he was transferred to the base on March 18th.

FIG. 9.—Case XV.

Base Report.

Heard from the patient that he was doing well some weeks later.

CASE IX.

Pte. M., Field Coy. R.E.; wounded March 10th, 1917, by a rifle bullet.

On admission it was found that the bullet had entered the back of the calf, passing up through the head of the tibia; it could be felt underneath the skin just above and external to the patella; joint very distended.

Operation.

Arthrotomy was performed and the bullet removed; a fissured fracture of the head of the tibia was noted; the joint was washed out with saline and closed without drainage.

Base Report (Red Cross Hospital, Perth).

March 24th, 1917. Stitches removed. Wound healed and patient up on crutches. Transferred to Canadian General Hospital, London, April 26th, 1917.

CASE X.

Pte. A., Highlanders; wounded April 2nd, 1917, by bomb.

He presented on admission a through-and-through wound, passing under the patella. Synovial fluid was escaping from the wound.

Operation.

A crescent-shaped incision, convexity downwards, including the wound of exit and entrance in either horn, was made, the patella reflected upwards, and a transverse gutter fracture just above the articular surface of the femur excised; the synovial membrane was sutured over it, the joint irrigated with saline and closed. He was transferred to the base on April 3rd.

Base Report (a Canadian General Hospital).

A slight skin infection at one end of the wound, which cleared up in a few days. Sent to England.

CASE XI.

Pte. R., Highlanders, wounded on March 13th, 1917, by shell fragment, presented on admission a severe compound fracture of the right femur, and a large flesh wound over the antero-internal aspect of the left knee-joint; extensive destruction of skin and deep tissues exposed widely this surface of the joint; both wounds were very dirty.

Operation.

On March 14th the infected and damaged tissue of the knee-joint was freely excised. Bone was not injured; the joint was irrigated with saline. bipp was smeared into the joint, and rubbed into the surrounding tissue; the synovial membrane alone was sutured. The fracture of the femur was treated by the Carrel-Dakin method. He was transferred to the base on March 16th.

Base Report (a General Hospital).

March 31st, 1917. Amputation of left leg. Sequestrotomy of femur.

April 6th, 1917. Died from sepsis. *Post-mortem* examination: fatty degeneration of kidney and liver.

CASE XII.

Pte. F. D., R.F.A.; wounded on April 2nd, 1917, by shell fragment.

There was a large wound of entrance only, situated over the external condyle; the joint cavity was freely exposed. *X* rays showed a large piece of metal impacted in the articular surface of the external condyle of the femur.

Operation.

The wound was excised and enlarged, the patella and tendon divided; the metal, with a portion of the surrounding bone, was cut clean out *en masse;* the joint was irrigated with saline and the cavity packed with gauze soaked in bipp; the end of the gauze was brought out and the rest of the wound closed in layers. He was transferred to the base on April 3rd.

Base Report (a Canadian General Hospital).

Gauze left in knee-joint for nine days before removing it. He had an infection localized to the track where the gauze was, but no general infection of the joint. His condition is good and the result should be a useful knee-joint.

CASE XIII.

Lieutenant M., Canadian Infantry; wounded on April 20th, 1917, by a shell fragment. The wound of entrance was on the top of the patella; there was no exit wound; there was a large effusion of blood into the joint. *X* rays showed a foreign body lying between the fragments of the patella, which was severely comminuted.

Operation.

On April 21st a transverse incision was made, the patella removed, and the joint irrigated with saline; the quadriceps tendon was lengthened and sutured, and the capsule and wound closed; a Carrel tube was placed underneath the skin; Dakin's solution was used every two hours. He was transferred to the base on April 23rd.

FIG. 10.—Case XVIII. Radiograph taken after operation. Shows bipp in hole in external condyle, also size of cavity.

Base Report (a Red Cross Hospital).

This patient has done most awfully well; Carrel tube removed. Has never had any rise in temperature. Wound healed. Transferred to England.

CASE XIV.

Cpl. F.; wounded May 6th, 1917, by a bomb.

There was a wound of entrance only, internal to the patellar tendon. *X* rays showed a metal fragment in the joint cavity. There were multiple wounds also of legs, arms, and face.

Operation.

A crescent-shaped incision including the wound of entrance was made, and the patellar tendon partially divided. A foreign body lying loose in the joint was removed, and a gutter fracture of the inner border of the patella resected. The joint was washed out with saline, and the wound closed in layers. He was transferred to the base on May 7th, 1917.

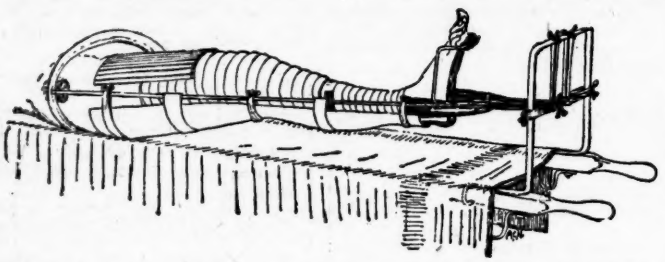

FIG. 11.—Thomas splint outfit for transport, with outer bandage removed to show method of application. Support is afforded to the limb by a ham splint, firmly padded under the popliteal space, and slung by a bandage at three points with two additional slings of adhesive plaster to prevent it shifting. Rotation of the leg is prevented by two lateral extension strips of gauze applied with glue solution and bound by a roller bandage. Only slight traction is necessary. Foot-drop is avoided by a third adhesive gauze applied from behind the heel, up the sole of the foot, and hitched to the crossbar of the foot-piece. General fixation of the limb is completed by a figure of eight bandage around the foot, which is continued upwards over all, including the anterior thigh splint.

Base Report (a Canadian General Hospital).

Treatment to knee *nil.* Patient sent to England, May 30th; no sign of joint infection.

CASE XV.

Pte. S., wounded by a bomb on May 9th, 1917, presented on admission a wound of entrance only through the patellar tendon. *X* rays showed a large piece of metal in the joint; there was no effusion.

Operation.

A crescent-shaped skin incision was made and the wound and track excised, including a portion of the patellar tendon; the metal, which was lodged in the infrapatellar pad of fat, was removed and the site smeared with bipp. The tendon was sutured, and the capsule and wound closed. He was transferred to the base on June 10th.

Base Report (a Canadian General Hospital).

Progressing satisfactorily.

CASE XVI.

Pte. S.; wounded by a bomb on May 13th, 1917. There was a wound of entrance on a level with the lower margin of the patella and internal to the tendon. *X* rays showed metal impacted in the inner head of the tibia.

Operation.

The wound and track were excised in a crescent-shaped skin incision; the patella was reflected upwards, and the comminuted lower tip resected; the foreign body was removed with a portion of the surrounding bone; the joint was irrigated with saline and completely closed. He was transferred to the base on May 16th, 1917.

Report from Base (a Red Cross Hospital).

Wound healed by primary union; most successful knee-joint operation. Evacuated May 30th.

CASE XVII.

Pte. C.; wounded on May 21st, 1917, by a bomb. On admission there was a large flesh wound involving the antero-internal aspect of the knee, with considerable loss of skin and deep tissue, exposing the joint cavity from the top of the supra-patellar pouch to the head of the tibia. *X* rays showed that a portion of the inner head of the tibia and internal condyle had been chipped off.

Operation.

The wound and infected tissue were excised, the internal meniscus removed, the cavity in the condyle and in the inner head of the tibia was cut clean out with a portion of the surrounding bone, and the joint irrigated with saline; the lateral attachment of the synovial membrane was loosened, rendering it possible to close the joint more or less; the hole in the tibia was dressed with bipp. The operation was completed by making a skin flap from the popliteal space and suturing it in position. He was transferred to the base on May 22nd, 1917.

Base Report (St. John Ambulance Brigade Hospital).

Wound healed by first intention. Raw surface at back has closed to such an extent as to render grafting needless; excellent result so far. To England June 28th.

CASE XVIII.

Second Lieut. H., Fusiliers, wounded June 6th, 1917, by shell fragment, was admitted with a large wound of entry over the external condyle. *X* rays showed a large piece of metal impacted in the condyle close to the anterior border.

Operation.

On June 7th the wound was excised and further enlarged; the foreign body, found impacted at a depth of half an inch in the condyle, was removed in the usual way; the joint was irrigated, the bone cavity smeared with bipp and filled with fat graft, and the wound closed in layers. He was transferred to base on the same day.

Base Reports.

From a General Hospital: Wound healed by first intention. Transferred to England June 14th. From 2nd Southern General Hospital, Bristol:—June 27th, 1917: Stitches removed; wound healed. Without a splint and doing well. (From the patient.)

CASE XIX.

Cpl. W. B.; wounded September 7th, 1917, by a bomb. There was a large through-and-through wound on the antero-external aspect of the knee-joint. Synovial fluid was escaping from the wound.

Operation.

The wounds of entrance and exit were excised in one piece; no injury to bone; the joint was washed out with saline and closed. He was transferred to the base on September 17th.

Base Report (a General Hospital).

October 6th. Wound healed by first intention. Transferred to England.

CASE XX.

Pte. J. T. A.; wounded October 5th, 1917, by shell fragment. The entrance was to the inner side of the patellar tendon and there was a large exit wound over the outer side of the head of the tibia; the wounds were very dirty. *X* rays showed severe comminution of the head of the tibia on its outer side.

Operation.

On June 6th the wound of entrance and the track in the soft tissues were excised by a crescent-shaped skin incision, the patella was reflected, the external semilunar cartilage and infrapatellar pad of fat removed, and the head of the tibia then exposed by prolonging the excised exit wound vertically downwards; the damaged bone was removed *en masse;* the bone cavity was packed with bipp gauze, the joint washed out with saline, and the wound closed. He was transferred to the base on October 12th.

Report from Base (a Stationary Hospital).

October 18th, 1917. Knee-joint distended; purulent fluid withdrawn by needle; joint opened and Carrel tubes inserted. Bipp plug to tibia. October 31st. Has cleared up, and there is now no discharge from the joint, though there is still a good deal from the hole in the tibia. Transferred to England.

[I desire to thank Colonel H. Gray, C.B., for much valuable advice on this subject. My thanks are also due to Lieut.-Colonel W. D. C. Kelly, D.S.O., for permission to publish these cases, and to Captain A. Campbell Haddon, R.A.M.C.(T.F.), for the drawings illustrating this article.]

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THE KNEE-JOINT CAPSULE:

A RADIOGRAPHIC STUDY.

BY

F. RUPERT SNELL, M.B., B.S.,

CAPTAIN R.A.M.C.(T.C.).

IT is not the purpose of this paper to refer to any of the points raised in recent articles by Colonel Sir A. W. Mayo-Robson and Major Keith Monsarrat on knee-joint injuries, but rather to show at a glance the salient and more obvious features of an injected normal knee-joint capsule, representing as it does an acutely inflamed, distended, synovial membrane which from a surgical point of view requires immediate interference. The minute anatomical detail has already been thoroughly dealt with by Colonel Andrew Fullerton, C.M.G.[1] Knowing, however, the difficulty of reproducing shadow contrasts in many *x*-ray photographs, it is hoped that these simple graphic drawings, made for me from the original skiagrams by Mr. Noel Leaver, A.R.C.A.Lond., will facilitate the grasping of the points at issue in discussions relating to the surgical treatment of knee-joint affections.

FIG. 1.

A direct antero-posterior view is shown in Fig. 1. In the first place there is to be noted the marked tendency to displacement well over to the outer side of the femur, and not to the inner, where it barely reaches the border of the bone; it shows also the distance it extends above the joint line, nearly five inches, and three inches above the patella; almost the entire outer condyle is covered by the overlapping capsule in front, whereas the inner condyle is very nearly free. The patella is seen in its normal position, much more over the outer than the inner condyle.

In Fig. 2 is shown a direct lateral view with the leg straight and lying on its outer side, thus bringing the inner side uppermost and nearest the plate. Here again it is manifest that the inner condyle is comparatively free from covering; the upward extension of the capsule three inches above the patella is shown, and also that it is slightly off the actual surface of the bone. The square-like upper border of the capsule is very marked, though this, of course, changes its shape on flexion.

The pouch underneath the patella averages about one fingerbreadth in thickness from the surface of the femur; but the most marked feature of this view is the extent to which the capsule is seen overlapping the inner surface of the shaft to nearly half the thickness of the bone. It is seen that in the popliteal space little more than the deepest part of the intercondylar notch is filled, and this only to the level of the upper intercondylar line; along the

head of the tibia the horizontally shaded portion represents the extent to which the upper and posterior portion of the head of the tibia is covered. The dotted line running from the top of the capsule from before backwards (through the vertically shaded portion) shows the extent to which the outer side of the shaft is overlapped.

Fig. 3 is from a skiagram taken with the knee in semi-flexion, but otherwise in the same position as in Fig. 2. This brings out the covering over the head of the tibia more forcibly in relation to the inner and posterior portion;

FIG. 2.

it shows also the little tongue of projection under the ligamentum patellae just where this overrides the head of the tibia; the most outstanding feature, however, is the marked extension of the capsule posteriorly, forming a large cushion-like pad more than filling the intercondylar notch, and even bulging out so far behind as to leave the posterior border of the outer condyle of the femur well in the background. This pad, however, is in relation with the inner aspect and not the outer.

The skiagrams were obtained by injection of the right knee-joint immediately after death, through the interosseous space to the outer side of and about 1 inch above the insertion of the ligamentum patellae. No difficulty was experienced in introducing the emulsion with a 1 oz. glass serum syringe. The pressure required was no more than that to emit such an emulsion from the nozzle of the syringe, and as soon as the capsule was just tense no attempt was made to risk distortion by overdistension; none of the emulsion escaped.

A dilute bismuth emulsion was used of the consistency of ordinary cream. It was carefully prepared by rubbing

FIG. 3.

up in a mortar, the following proportions being employed: Bismuth carbonate ʒ iv, aq. dest. (slowly added) to ʒ vi, compound tragacanth powder gr. xx. Great care was taken to ensure that the central ray was in the middle of the field in each case.

I am indebted to Captain Claude Horton, R.A.M.C., surgical specialist, for kindly carrying out the injection, also to Lieutenant P. W. Hampden, R.A.M.C., surgical specialist, for his collaboration in this report.

REFERENCE.

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THE ABUSE OF DRAINAGE TUBES.

BY

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SINCE I returned from France I have often been asked, even by intelligent members of our own profession, "What use is your experience of war surgery going to be in civil surgery?" These short notes are the answer, and are the experience of six months' civil surgery since my return from France.

War surgery, as is well known, is a very different thing now from what it was at the beginning of the war.

Now wounds of the head, chest, abdomen (even with faecal contamination), and knee and other joints are sewn up with impunity after early and complete operation, and the results are excellent.

These results are largely due to Colonel H. M. W. Gray, Consulting Surgeon, — Army, and to his devoted band of young and brilliant surgeons. One day the surgical world will realize what an enormous debt of gratitude it owes to Colonel Gray, and he will get the reward he deserves. It was he who first opened my eyes to the "abuse of drainage tubes," and it is his teaching I have applied to civil surgery.

He tells the story of a wounded man arriving at the base with over thirty separate wounds, into each of which a drainage tube had been placed. What a waste of labour—to say nothing of rubber! The first and most important result of the war in the surgical world will be the abandonment once and for all of the drainage tube. Its day is past, and soon it will only be seen, where it should be, in a museum. When one seriously sits down to think, it is incredible that we have for years deliberately placed into the soft and pliable tissues of the human body a more or less rigid drainage tube with an open passage for secondary infection to creep down. They are well termed, for they are an open "drain in" for infection from outside, and an open "drain out" for the strongly antimicrobic fluids poured out around any infection.

Sir George Lenthal Cheatle grasped this fundamental fact when he introduced his solid drainage tube with flanges; but he still kept to the rigid design. For years it has always been taught that if there is the least infection in any part of the body "put in a drainage tube." This is a mistake.

If surgeons will take their courage in both hands and will not be frightened by a little infection, leaving it to be dealt with by the natural resistance of the tissues to infection, and will give up the use of drainage tubes, they will not only find their results very much better, but they will find their outlook on surgery totally changed. I have proved this for myself, and a complete revolution has taken place in my surgical work.

The first question is, "What is to replace a drainage

tube?" All that is necessary is to put something into the tissues which will keep a "passage" open but which does not leave an open "drain." If a passage is required to be kept open I put in a piece of soft folded rubber—for instance, in an appendix abscess. This allows pus to come away, but will not leave an open "drain" by which secondary infection of staphylococci, from the skin, or other organisms can gain entrance.

It will be noticed, when using a soft rubber "passage tube," that the exuding fluid completely fills the spaces left, leaving no open "drain." I find that, unless it is absolutely necessary, it is advisable to use even a "passage tube" as little as possible, but, whenever it is possible, to completely sew up the infected wound. The results are excellent. War surgery has therefore taught us what should be the two main principles of civil surgery:

1. Early and complete operation.
2. That secondary or mixed infection is worse than primary infection.

While the tissues of the body can, if given a fair chance, deal with one infection only, if that infection becomes a mixed one by entrance of organisms from outside, then the last state is worse than the first.

After all, it is only the application of our old methods of dealing with tuberculous infections to all other infections, and treating them on exactly similar lines—namely, free incision, evacuation of contents, cleansing by mechanical means, or by the use of an antiseptic, and primary suture.

It breaks my heart to see surgeons using fomentations and weak antiseptic baths in the treatment of wounds, for they simply encourage the staphylococci to come out of the pores of the skin and secondarily infect the wound.

It is interesting to note the steps by which I gave up the use of "drainage tubes" once for all. I came back from France with a dislike to them, and have only used them since on three occasions, once for a general peritonitis following appendix abscess and twice for empyemata. Always in other cases I have used "passage tubes" of folded rubber. Now I use the latter as seldom as I can, and completely close cases of empyema.

Applying my experience of modern war surgery I started sewing up ordinary staphylococcic abscesses of the subcutaneous tissues, after incision and wiping out with bipp, and found they healed by first intention. I next went a step further. I saw a case of perforated gastric ulcer two hours after perforation, and operated within four hours. I sewed up the perforation, and, as it was near the pylorus and tended to close it, did a gastro-enterostomy. I mechanically cleansed the peritoneum of food, washed out with flavine, and completely sutured. The result was healing by first intention and an uninterrupted recovery, better than I have experienced with the use of a drainage tube.

In these cases and others of perforated hollow organs, stomach or bowel, it is difficult to say which is the most important, mechanical or antiseptic cleansing. Personally I think mechanical, because the rubbing of the peritoneum with gauze produces a beneficial hyperaemia and transudation of lymph.

Then I had to treat a bad compound fracture of tibia and fibula with a large external and contused wound, in a boy who had been run over by a motor lorry. I excised well clear of all damaged tissues—wiped out with bipp, and so mechanically cleansed and closed the whole wound by primary suture. The result was healing by first intention without a trace of suppuration.

The next step forward was in a case of gonococcal peritonitis. I found the peritoneum infected and containing a turbid fluid; I removed one Fallopian tube full of thick gonococcal pus, cleansed the peritoneum mechanically, washed out with flavine, and closed without drainage. The result was uninterrupted recovery and healing by first intention.

As to this case, I realize that it is the practice of many surgeons not to drain in gonococcal peritonitis, and that the fluid passed out by the peritoneum is frequently sterile, but I quote it because I myself, before my experience of modern war surgery, would have drained it for fear of infection, and I am sure other surgeons are "putting in a drainage tube to be on the safe side."

Why should we drain an empyema, where, by the putting in of a drainage tube, we not only run the risk of secondary infection but of collapse of the lung with its sequelae?

A case of empyema following a very severe attack of pneumonia occurred in a man very debilitated and ill, so that it was hardly thought he would live. I excised a piece of rib under a local anaesthetic and made a small incision into the pleura. At once he coughed out a large amount of thick fibrinous exudate. When he emptied his pleura I washed out with flavine and injected about a pint of a suspension of iodoform in paraffin, and sewed up from the pleura and then the skin. His general condition at once improved, the pulse and temperature gradually dropped, and I am quite certain he has made a better recovery than with an open "drainage tube."

The only drawback I found, and that was a small one, was that occasionally a small amount of pneumococcal pus and iodoform paraffin collected between the pleura and skin in the dead space left by the removal of a rib, and required evacuation. Only once did his temperature rise to 100°, but the pulse came steadily down from 120 to 74. He is now very well, and my friend Dr. Elgood, the physician who pulled him through his pneumonia, and I are very pleased with him. Four weeks after the operation the lung had expanded well.

By this method of treating empyema the risks of massive collapse of the lung and of secondary infection are both avoided and the convalescence is shortened.

I must confess to one failure, if it can be called so:

A child was sent into hospital with a diagnosis of appendicitis. I found general peritonitis with much thickened lymph covering the intestine. The appendix was normal, and no other cause was found. A swab taken was found to be sterile, but no doubt it was a case of pneumococcal peritonitis. I found too much exudation and flaky lymph to attempt mechanically to cleanse the whole of the intestines, which were covered in fibrinous deposit. I washed out with flavine and completely closed the abdomen. The child did very well, the abdomen was quite soft, the bowels acted well, and there was no vomiting. Suddenly on the fifth day the child became worse, and Dr. Elgood, who was in the hospital at the time and saw her, diagnosed pneumonia, and she died before I could be found. Unfortunately no *post-mortem* examination was allowed, but I have no doubt that the child died from a lung complication, and not from the abdominal condition.

A method of treatment in bone surgery which I was beginning to employ in France was founded on the idea of eradicating the "dead space" in a bone following the loss of substance by a gunshot wound or by an operation for infection. My idea was that where a dead space or open cavity was left in a bone by destruction it should be filled, not by blood clots, allowing a nidus for primary or secondary infection, but by an antiseptic wax which could be poured in hot, and would gradually cool and fill up any cavity. I did this on three occasions with excellent results, using a compound of thymol, vaseline, and candle-wax, which I found would become semi-solid at normal body temperature.

The first case was a wound of the upper arm with much destruction of the upper end of the humerus. By early and complete operation I removed many fragments and found a large cavity in the bone. This I filled with thymol wax and carried out primary suture. The compound fracture of the humerus healed by first intention and the result was very good, although a certain amount of thymol wax was exuded for a time through the stitches. I also carried out this treatment for a through-and-through gunshot wound of the ankle where the head of the astragalus was completely gone. The wound healed by first intention without, in this case, any exudation of wax.

I used this treatment as a secondary measure in a compound fracture of tibia with a big hole in the bone. As the wound was clean I poured in thymol wax and filled the cavity and performed a secondary suture; the wound at once healed. I have had no opportunity of applying the method in civil surgery, but in osteomyelitis of the tibia, for example, I should completely lay the medullary cavity open, thoroughly scrape away the infected medulla, fill up the "dead space" with thymol wax, and carry out primary suture. I feel sure the result would be better than by laying the bone open and allowing the wound to heal by granulation.

Conclusion.

In order to avoid mixed infections surgeons must practise primary suture far more than in the past, and completely give up the use of rigid open drainage tubes.

Instead of draining where there is infection I advise going to the opposite extreme, and not to leave a "passage" open unless it is absolutely necessary.

If a secondary abscess or leakage from bowel should occur it will be dealt with by the inherent resistance of the body to infection, or should an abscess form it can be treated by a second operation, after adhesions have formed.

A new epoch in surgery will dawn when surgeons realize, as I have done, that they can leave quite a large amount of infection to be dealt with by the inherent resistance of the body to infection.

These notes are written with the sole object of stimulating my seniors and contemporaries who have more material to carry out the lines I have suggested, and to more and more practise primary suture in their cases, and above all to give up once and for all the use of open rigid drainage tubes.

Sir Bertrand Dawson, G.C.V.O., has kindly added the following note on the treatment of streptococcal empyemata:

With regard to empyemata, my experience is that the pneumococcal ones do well with immediate closure after evacuation, but not the streptococcal. These latter need to be drained for two or three days, with or without Carrel tubes, and then they can be sewn up.

I agree that streptococcal infections must be dealt with on different lines from staphylococcal, pneumococcal, and other infections, but in civil practice it is very rare to meet with streptococcal empyema.

ANOMALOUS MUSCULAR ACTION IN NERVE INJURIES.

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THE precise action of an individual muscle is not always easy to determine in the uninjured limb, since a particular movement is in most cases brought about by the resultant action of many muscles and not by one alone. When a nerve trunk is severed and the muscles supplied by it are put out of action, the muscles supplied by the uninjured nerves of the same region sometimes give rise to surprising movements. It is probable, in fact, that the movement resulting in these cases is such as never occurs in a limb with properly balanced muscles. While this movement is in many cases of mere academic interest, it occasionally happens that it may flatter the surgeon who has performed a nerve suture, giving him the impression that muscular recovery has begun, whereas an attentive examination of the muscles causing the movement may show that his conclusion is premature.

One of the most striking instances of this that have come under my notice is that when the median and ulnar nerves are divided in the upper arm, active flexion of the wrist is often still present, being brought about by the extensor ossis metacarpi pollicis. Another anomaly is seen in posterior interosseous paralysis, namely, the first dorsal interosseous muscle can cause a lifting of the thumb easily confused with commencing recovery of extension of that digit. These two anomalous movements clearly depend upon the difference of the plane in which the metacarpal bone of the thumb lies relatively to the plane of the four remaining metacarpals.

Other unexpected actions are that the terminal phalanx of the thumb can be actively extended in cases of posterior interosseous paralysis, the extension of course being brought about by the insertion of the abductor pollicis into the dorsal expansion of the extensor tendon; and that in ulnar paralysis the index finger can be slightly abducted by the obliquity of the extensor tendons passing to that digit. In persistent paralysis these movements, aided by use, massage, and electrical stimulation, may acquire some importance.

Some of these unsuspected muscle actions, it is true, may indicate merely that one's memory for anatomical detail requires furbishing, and anatomists could doubtless furnish many more instances. There is no doubt, however, that a partially paralysed limb offers a rich field for the investigation of the essential action of individual muscles.

Another anomaly which may often be observed is due to the general preponderance of the flexor muscles. This is seen in its most marked form in lesions of the upper motor neuron—for example, in a case of hemiplegia. If the wrist of such a patient is passively extended, the fingers curl into the palm and exercise a quite perceptible grip. In a lower motor neuron paralysis—for example, in complete lesion of the median and ulnar nerves in the upper arm—this action is also observable, though it is not so evident, and may give rise to a false notion that recovery of active flexion of the fingers is in progress. In some cases it certainly indicates that the elasticity, and therefore the nutrition, of the finger-flexors is being maintained, but in others it points to essential fibrosis and shortening of those muscles, and is consequently of grave significance. In the latter case it usually betrays neglect of treatment. If the fingers can be straightened only while the wrist is flexed this condition of fibrosis is present in the flexors of the fingers. In a most helpful paper Professor Langley[1] has shown that the danger of stretching a paralysed muscle has been somewhat overstated. It is questionable, at any rate, whether it is preferable to risk stretching the muscles or to encounter a case of musculospiral paralysis so assiduously treated on a "cock-up" splint that the wrist, by reason of fibrosis of the extensors, could be brought neither up nor down.

It is surprising, again, to find what little muscular disability may result from complete division of the median nerve at the wrist. In a case recently operated upon there was, except for most intractable trophic ulcers over the median distribution in the hand, which was completely anaesthetic, practically no disability, and the lesion might easily have been overlooked. The abductor pollicis was completely paralysed and its situation represented by a fossa on the radial side of the metacarpal bone, but the loss of this muscle seemed not to affect the utility of the thumb. As for the movement of opposition, this was quite efficiently carried out by the adductores pollicis in combination with the long and short flexors, both heads of the latter appearing to be active in spite of the complete division of the nerve an inch above the wrist. It is interesting to note that within a month the trophic ulcers healed for the first time, but there was still complete protopathic loss. This may only indicate, however, that the hand had received better protection after the operation than it had previously obtained.

Cases such as this are of interest from the ease with which nerve lesions may be overlooked, as pointed out by Mr. T. E. Hammond[2] in the case of the internal popliteal. They also illustrate the point that if a nerve is sutured without a previous careful examination of both muscular and sensory loss, the operator may claim results to which he is not entitled. This may account for some cases of atypically early recovery after nerve suture.

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EARLY CARDIAC BREATHLESSNESS AND "BUFFER-SALT" DEFICIENCY IN THE BLOOD.

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THE review in the JOURNAL of June 22nd (pp. 702–4) of the report of Dr. Lewis dealing with the causation of breathlessness on exertion in early cardiac cases is most interesting, but may I be allowed to point out that the expression "buffer salts," first coined in Germany for an effect described and measured originally in Britain, conveys an erroneous impression, because the protective action against variations in acidity or alkalinity is due not to the inorganic salts, carbonates, or phosphates, of the plasma, but almost in its entirety to the amphoteric proteins?

This protective action was fully described, and a quantitative method supplied for its estimation, by the writer and his colleagues Roaf, Wilson, and Whitley at the biochemical laboratory of the University of Liverpool over a decade ago, the results being published in the *Proceedings of the Royal Society* and the *Bio-chemical Journal*.[1]

The action was described under the title of the "reactivity of the serum," as distinct from the "reaction of the serum" at any given moment, and by estimating the amount of decinormal alkali and acid necessary to titrate from one definite value of hydrogen ion concentration to another, marked by the mid-point or neutral point to two coloured indicators, namely, phenolphthalein and methyl orange, there was assigned a quantitative value to the "reactivity" or protective power of the blood and tissue

fluids. This had to pass to the Continent and be re-dubbed the "buffer-salt effect" before receiving attention, and even now these earlier papers seem to be unknown to British workers on the subject, although their results would well repay a little consideration.

For example, the expression "buffer-salt" is quite misleading; the effect is not due to salts, for the very sufficient reason that there does not exist a sufficient quantity of sodium carbonates and phosphates in the plasma *in toto* to account for one-tenth of the protective influence, or to carry one-quarter of the carbon dioxide found in arterial blood. Salts cannot protect which are not there, and at least 90 per cent. of the protective action is due to the plasma proteins.

A most important point brought out by this earlier work which appears to have been quite forgotten is that all the inorganic salts of the plasma, including even the sodium chloride, are held in union by the proteins. It is this union which regulates the amount of salt in the blood with such a delicate precision. The excretory cells allow no excess of free salt in the circulating plasma, and it is this combining power of the proteins for salts which determines the value of physiologically "normal saline."

If the molecular concentration of mammalian serum be determined from the depression of its freezing point it will be found to be approximately equivalent to that of a one-sixth molecular solution of sodium chloride. If, now, the same serum be titrated with standard acid till neutral to an indicator such as methyl orange, and then with standard alkali till neutral to phenolphthalein, the range will again be found equivalent to a one-sixth molecular solution. Outside these two marginal limits very small additions of acid or alkali swing up or down the hydrogen ion concentration with enormous speed; within the limits large additions of acid or alkali produce only moderate effects.

Within these viable limits, marked out by the titratable value of the proteins, variations by accumulation of organic acids and alkali and carbon dioxide occur in varying conditions of health and disease, and the neuro-muscular and cardiac system may be chronically fatigued by such products. The soldiers investigated by Dr. Lewis may owe their condition to the strain of neuro-muscular fatigue induced by a physical training for which they are unfitted by nature. Apart from military training, the prolonged strain of war conditions is producing such an action on many people in civil life. Breathlessness, accompanied by disordered heart rhythm, is a prominent symptom, especially after any prolonged neuro-muscular exertion, in many persons bordering upon neurasthenia at the present time.

A variation in the balance of "reactivity" of the blood may also be present in the different forms of "shock." It has been shown by Roaf and Adamson that the serum proteins completely lose their osmotic pressure when acid is added to the serum till the equi-potential point or point of physico-chemical neutrality is reached. Bayliss has recently shown that colloids such as gum acacia or gelatine, which were demonstrated by the earlier work of Moore and Roaf to have a high osmotic pressure, possess the property of maintaining for much longer periods than purely saline solutions a higher blood pressure under shock conditions.

These and kindred problems are intimately connected with that protective mechanism in the blood plasma first described and measured in Britain under the term of "reactivity of the serum," and later reintroduced from Germany under the name of "Puffer-salzea" or "buffer effect."

REFERENCE.

[1] Moore, Roaf, and Whitley. *Proc. Roy. Soc.*, B, vol. 77, p. 102 (1905); and Moore and Wilson, *Biochem. Journ.*, vol. i, p. 297 (1906).

CARDIOPTOSIS.

BY

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I AM not sure whether the term "cardioptosis" has yet found its way into cardiology. I do not remember coming across it, and it is not in any of my textbooks. Yet I am sure the term would serve a useful purpose in focussing attention on a condition not unlikely (as in one instance here related) to be misinterpreted. The condition, of which I can only speak from the clinical standpoint and from my limited experience, would appear to be one of undue laxity of the cardiac supports, such that, whilst the apex beat in recumbency is found about the normal position, in the fifth space, in the erect position it is located just below this, in the sixth space, without any evidence of other causes to account for the displacement.

In the first of the two following cases there was no sign of enlargement of the heart, although "enlarged heart" had been diagnosed, partly from the position of the apex beat in the sixth space; and in this case the dropped heart was associated with an obviously dropped kidney and a probably dropped stomach. In the second case there was moderate cardiac enlargement, although not so great as to seem to account for such a displacement of the apex beat in the erect position; a palpable spleen with normal temperature and no obvious blood changes in a fresh film, suggested in this second case a dropped spleen, but this could not be certainly diagnosed in the limited time at my disposal.

CASE I.

M. E., aged 21, suffered from attacks of "faintness," not, however, going to complete unconsciousness. He had had diphtheria badly at 1½ years old, followed by "paralysis of hands and feet," and could not walk till 3. He had had double pneumonia at 11 and a bad fall at 17; he had also been physically overworked, I think.

The chest was slightly deformed, the third and fourth rib cartilages on both sides being unduly prominent at their sternal junctions. Urine, lungs, and reflexes were normal. There was marked nephroptosis on the right side, and the lower border of the stomach (which seemed, however, to be somewhat dilated) was close to the umbilicus. He was supposed to have "enlarged heart," but my examination gave the following results: In the erect position the cardiac dullness reached from the mid-sternal line only ½ in. rightwards and 3½ in. leftwards. The apex beat was quite obviously in the sixth left space, 3½ in. from the mid-line of the sternum. In the recumbent position the right margin of dullness was at the mid-sternum and reached leftwards 3 in. The apex beat in recumbency was obviously in the fifth space at about the edge of the dullness. There was no murmur in the recumbent position, but in the erect position a very local short systolic murmur was heard 1 in. outside the apex beat during inspiration only, being completely lost during sustained expiration.

CASE II.

J. S., 48, complained of weakness and occasional shortness of breath, had considerable rheumatoid arthritis, and was more or less a chronic invalid.

In the erect position the cardiac dullness reached rightwards to mid-sternum and leftwards to the left mammary line, 4 in. from mid-sternum; upwards to the fourth rib. The apex beat was unmistakably in the sixth space. In the recumbent position the dullness was, as usual, narrower, but reached as high as the third rib. The apex beat was definitely in the fifth space inside the left mammary line.

There was a systolic murmur, heard in both positions, louder after exertion and unaffected by respiration, where the fifth rib cartilage joined the sternum. Urine, lungs, and reflexes were normal. In the abdomen the splenic edge descended on inspiration about a fingerbreadth below the left ribs. The blood in fresh film seemed normal and the temperature was normal.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THRESHOLD TESTS.

MUCH is to be learnt by investigating the thresholds for light and colour. Finding by routine examination that a normal standard, quite as uniform as that for visual acuity, exists, I have recently attempted to standardize a series of test objects which can be universally used for determining how near to, or how far from, the normal standard each individual eye is. In diseases of the retina, the choroid, and the optic nerve, very remarkable variations from the normal are found. But I have reason to believe that abnormal thresholds are not limited to diseases of the eye; marked changes in the thresholds are certainly to be found where the ocular implication is secondary. Thus, working with my test, my colleague, Dr. Walter Sinclair of Ipswich, pointed out that in several of his cases of retinitis of pregnancy the threshold for yellow was the only one attacked, but that very considerably. I found the same in the only case I have seen since. The threshold for yellow was reduced to recognition of the dilution 1 in 4, instead of the normal 1 in 32.

Though this can be no more than a hypothesis, I suggest that those who are not limited, like myself, to ophthalmic

practice should search all cases for a while with the view of ascertaining whether there be any cases in which reduction of the threshold proves to be the only ocular symptom.

An account of the test and of some of the work done so far on this subject will appear shortly in the *British Journal of Ophthalmology*.*

I give here a brief explanation of what is meant by the thresholds.

The Threshold for Light.

If in a railway train we pass through a long tunnel and there is complete darkness, even after adaptation, we notice on approaching the exit a moment when the first glimmer of light is perceived. This is the threshold for light. A patient whose light sense was reduced would not perceive light till some time after we did.

The Threshold for Light Differences.

The stars are always in the sky, but we only see them after sunset, because though there is a difference in light intensity between them and the sky, even in daylight, there is not sufficient difference for the human eye to distinguish them. The threshold for differences of light intensity is reached the moment the evening star becomes visible, or the instant the morning star fades out of sight. We would distinguish the evening star sooner than our friend in the train, and would still see the morning star after it had vanished for him. I find that when the threshold for light is reduced, that for light differences is equally so. A test of the latter is incomparably more simple, and for all practical purposes sufficient. It becomes practically a measure of the light sense.

The Threshold for Colours.

These thresholds are quite distinct from both the previous ones. They are indicated by the very first tints perceivable in the clouds when we watch the horizon at dawn, and the very last trace of colour in the sunset clouds before all is grey.

That the periphery of the retina is more sensitive to these thresholds is easily observed by watching the Pleiades. If a point more or less remote from this group be fixed on the sky, a far greater number of its stars evoke our light sense than if the group itself be fixed.

The point to decide is, whether these thresholds have any clinical value for diagnosis, differential diagnosis, or prognosis.

Colchester. GEORGE YOUNG, M.D.

* A very handy test, in album form, is obtainable from Messrs. John Weiss and Son, 287, Oxford Street, by means of which each eye separately is tested in a minute. On the patient's part it requires no understanding and very little intelligence. The album contains series of graduated spots of grey and four colours. The palest grey recognized gives a measure of the light threshold; the palest colour spot in each series which evokes a true sensation of colour, irrespective of the name given to it, gives a measure of the colour thresholds. Both are approximate, but suffice.

A CASE OF TETANUS NEONATORUM.

TETANUS NEONATORUM is so rare in this country that the notes of the following case, the only one I have met with, may prove to be of interest.

On April 1st, 1918, I was called to see a male child, nine days old, who was said to have been crying all day, and had not taken the breast. The mother, a young primipara, had been attended by a certified midwife, who reported that labour was normal in every way. The mother had made a good recovery. I found the baby on the nurse's knee, crying loudly. Instead of opening its mouth fully, however, there was scarcely half an inch of separation between the jaws. An attempt to increase the opening with the finger failed, and it was only after force strong enough to bend a spoon had been employed that the attempt was abandoned.

The jaw was indeed locked. The mouth and throat, so far as could be determined, were healthy. The umbilical scar was sloughing and from it exuded a moderate amount of thick pus. Around the umbilicus there was a band of inflammation about an inch in breadth, dusky red in colour. A diagnosis of tetanus was made and a bad prognosis given.

On April 2nd the child presented all the classical signs of tetanus. The jaw was fixed and the angles of the mouth drawn upwards. The arms were flexed at the elbows and rigid, and the hands clenched. The legs were fully extended and rigid. The head was firmly retracted to a moderate extent and the body was in a position of opisthotonos. Tetanic convulsions were frequent and were excited by shaking the child and by other stimulation. There was no muscular retraction between the spasms. The child died the next day.

A swab was taken from the pus which exuded from the umbilical scar and microscopic slides were prepared. The pathologist (Dr. Burnet) reported that the slides contained numerous cocci, diplococci, and diphtheroid bacilli, with other bacilli, but no tetanus organisms. Culture of the swab failed to produce any tetanus organisms, but there were numerous cocci and bacilli of the *Bacillus coli* type. Although the failure to establish the presence of the tetanus organism would seem to introduce an element of doubt, yet the symptoms were so typical as to preclude an error of diagnosis.

During a moderately long experience of midwifery in general practice I have been much impressed by the rough and ready methods employed during the act of separation of the child. It is quite usual for the midwife to ligature the cord with strong cotton which has not been sterilized. The scissors, moreover, are rarely boiled; in fact, no attempt whatever is made to prevent sepsis. With this fact in view it seems strange that one does not meet with more cases of a similar nature to that reported. The cases of umbilical hernia, so common in the young child, may be due to sepsis with consequent stretching of the scar, the result of bad treatment of the cord at birth. Prolonged jaundice occurring in the first days of infant life is due, I believe, in a large number of cases to a similar cause. It should be the bounden duty of those who teach the fundamental principles of obstetrics to nurses and midwives to instruct them that although the umbilical cord becomes separated by a process of gangrene, it nevertheless requires as much cleanliness and care in its treatment as though one were dealing with a healthy tissue.

Doncaster. HAROLD F. RENTON, M.D., B.S.Lond.

ECTOPIC GESTATION: A CASE OF TWINS IN ONE GESTATION SAC OF TUBAL ORIGIN.

A MARRIED Frenchwoman of some twenty-two years was admitted into Founder Ward, Middlesex Hospital, in the summer of 1913, suffering from an acute abdominal condition, and in the absence of my senior colleague, Sir John Bland-Sutton, I was asked to operate. Her condition and the history were such as to suggest a severe abdominal haemorrhage, probably of pelvic origin. She had been married two or three years, had no children, and there was a history of a missed "period," followed by an acute attack of pain some days before admission, and then the violent catastrophe which brought her for immediate relief to the hospital in a desperate condition.

A median subumbilical incision revealed the presence of about four or five pints of blood in the peritoneal cavity, and an investigation of the source of the haemorrhage revealed a large mass of clot projecting from the posterior surface of the right broad ligament. The right tube was swollen, and had been the site of the primary gestation sac, which had undergone an intraligamentous rupture; the secondary sac had formed in the right broad ligament, and this had in turn given way. The attack of pain ten days before admission doubtless corresponded to the rupture of the primary gestation sac, and it was the rupture of the secondary sac which produced the alarming symptoms from which the woman was now suffering. In the blood clot between the layers of the right broad ligament, and extruding from the rent, were found a complete embryo in good condition, and the head and shoulders of a second one. They were handed over to the anatomical department, and Dr. R. J. Gladstone kindly informs me that the intact embryo had a length of 32 mm. There was no flaw upon the complete fetus to suggest that the second head and shoulders were a part of some monstrous form, and the portion of the second embryo present was perfect in so far as it existed. Search of the blood clot failed to discover the remainder of the twin. Considerable difficulty

was experienced in controlling the haemorrhage from the placental site on the lateral border of the uterus, and a series of mattress sutures was required to secure this.

The sequel was tragic, since a fortnight later the patient suddenly developed acute intestinal obstruction, which on operation was found to be due to a coil of small intestine that had become adherent to the bottom of the pelvis in the region of the former placental attachment to the side of the womb. The coil was released, and it was hoped that the condition would be thereby relieved, but the bowel failed to empty itself, and a jejunostomy was performed. This vent relieved the urgent symptoms, but all later efforts to close the opening failed and the patient rapidly lost strength and finally died of inanition.

The case has several features of interest. First, the condition of twins in a single gestation sac must be exceedingly rare; although I have no present access to any literature, I am aware that the condition is not unique. Secondly, it is probable that the performance of hysterectomy for the bleeding from the side of the uterus instead of the laborious insertion of mattress suture after mattress suture would have obviated the acute obstruction from which the patient died, but the condition of the patient at the time of the original operation must be borne in mind. Thirdly, the vivid manner in which this little Frenchwoman's death still remains indelibly fixed in my mind is a criterion of the almost uniformly certain aid that surgery can bring to luckless sufferers from an ectopic pregnancy.

GORDON TAYLOR, M.A.Aberd., M.S.,
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Temporary Major R.A.M.C.; Senior Assistant Surgeon, Middlesex Hospital, etc.

Reviews.

THE ROTUNDA HOSPITAL.

THE history of the famous lying-in hospital of Dublin has been written by Dr. KIRKPATRICK, the historian of the medical school in Trinity College, and the book has been edited by Dr. HENRY JELLETT, the late distinguished Master.[1] The collaboration of these two physicians represents a union of historical research with first-hand knowledge which gives special value to their work. A long article was ready for the press when the war broke out and at once reduced the space available for historical matter to vanishing quantity. The curtailed form in which the review now appears is not due to any lack of appreciation of the importance of the work but to conditions of publication over which we have no control.

When Bartholomew Mosse, the founder of the Rotunda, began to practise in Dublin there was no lying-in hospital in Ireland or Great Britain. It was a bold undertaking for a man of barely 33 and with no practical experience of hospital management to embark on such an enterprise. None of his professional brethren came forward to help, and some actively opposed him. Mosse, nothing daunted, formed a "union of a number of persons of different occupations, most of whom subscribed four shillings and fourpence yearly to be paid quarterly for the support of the intended hospital." With this small promise and what money he could spare from his own slender means he took a house which had been a theatre, and it was opened as a hospital in March, 1745; before November 1st, 1747, 509 women had been delivered in it of 522 children. In the endeavour to provide money for his foundation, Mosse had become deeply involved in financial speculations, and was at least once arrested for debt. Nevertheless, in 1748, he bought a site of more than four acres in what was then a suburb. On part of this space he proposed to build a hospital with accommodation for at least 150 patients; the rest was to be laid out as public gardens to be used for entertainments, the profits of which were to go towards the maintenance of the hospital. On July 9th, 1751, the foundation stone of the new building was laid by the Lord Mayor of Dublin. Mosse was anxious that the new hospital should be a national institution, and in 1752 the required authority was obtained for incorporating the "governors and guardians of the hospital for the relief of poor lying-in women in Dublin." Among the first governors were the Lord Lieutenant, the Archbishop of Armagh, the Lord Chancellor, the Speaker of the House of Commons, the Lord Mayor of Dublin, and a number of other persons of high social standing. Mosse, who was the first Master, applied in 1755 to the Irish Parliament for financial aid, grounding his petition on the work done in the old hospital, where, from the date of its opening to September 30th, 1755, 3,674 women had been delivered of 3,746 children. It was urged that, in addition to the help given to poor women, the hospital had made it unnecessary for medical students to go to France or other foreign parts for instruction and experience in obstetrics, and that midwives also were taught. In 1756 a charter was granted by George II, and the hospital was opened by the Lord Mayor. On February 16th, 1759, Mosse died in the 47th year of his age, having carried his scheme to fulfilment in the face of many difficulties.

The subsequent history of the Rotunda is one of progress chequered by financial and other difficulties. Mosse was succeeded in the Mastership by Sir Fielding Ould, who is said to have officiated at the birth of the Duke of Wellington. In 1764 it was decided that a sum of £3,000 granted by Parliament should be laid out in building a large room in the waste ground of the hospital gardens. This room, from its shape, was called the Rotunda, and from this the hospital got the name by which it is universally known. It was let for oratorios, receptions, and similar purposes. In 1770 it was decided that systematic instruction in midwifery should be given at the hospital, and Mosse's creation grew into a Mecca of midwifery to which students flocked from the ends of the earth.

We wish we could follow Dr. Kirkpatrick in his fascinating narrative of the vicissitudes of the Rotunda; the story is full of human as well as scientific interest. In 1835 a gynaecological department was established. In 1838 Evory Kennedy, then Master, formed an association among his students to which he gave the name of the Dublin Obstetrical Society. This was soon joined by a large number of practitioners, and it continued in active life till 1882, when it was merged with the other Dublin societies into the Academy of Medicine.

More than once the existence of the hospital was threatened. Recurrent outbreaks of puerperal fever exposed it to severe criticism, and in 1867 Evory Kennedy informed the Governors that it had ceased to fulfil its purpose, owing, he argued, to the fact that the congregation of a number of lying-in women under one roof engendered and spread among them "a disease *sui generis* and of the most fatal character." His view was not accepted, but he returned to the charge in a paper read before the Dublin Obstetrical Society in 1869. This was followed by a debate which revealed the fact that of the seventeen speakers who took part in it not one had grasped the importance of the work done by Semmelweis. But Lister was about to bring in a new era. Lombe Atthill, who became Master in 1875, made an attempt to apply the principle of antisepsis. This was done in a more thoroughgoing manner by his successor, Arthur Vernon Macan. It would be difficult, says Dr. Kirkpatrick, to say too much in praise of Macan for the work he did while he was Master. If Mosse built the hospital, Macan saved it from extinction.

Under Sir William Smyly, Dr. Purefoy, and Dr. Jellett, the hospital not only maintained its position, but gained an even wider reputation than it had before. The part each of them played is left by Dr. Kirkpatrick to some future historian to record. Special mention should, however, be made of the successful efforts of Dr. Jellett to save the Rotunda from the doom with which its school of midwifery was threatened by the Insurance Act.

A word must be said of the fine illustrations with which the book is abundantly supplied. They show the growth of the Rotunda from the now dilapidated house in which it began its work to the stately edifice in which its beneficial activity is continued. Both the author and the editor of this handsome work may be congratulated on having raised a monument worthy of the famous institution whose origin and development are traced in an eminently readable style.

[1] *The Book of the Rotunda Hospital.* An illustrated history of the Dublin Lying-in Hospital from its foundation in 1745 to the present time. By T. Percy C. Kirkpatrick, M.D., M.R.I.A., Fellow and Registrar of the Royal College of Physicians of Ireland. Edited by Henry Jellett, M.D., F.R.C.P.I., Master of the Hospital. London: Adlard and Son, Bartholomew Press, Bartholomew Close, E.C. 1913.

THYROID AND THYMUS.

As an example of the bookmaker's handiwork this sumptuous volume, *Thyroid and Thymus*,[2] merits high praise—paper, type, binding, and illustrations are of the first order. The regret is great when a rich setting is employed to show off a stone badly cut, and not of the highest quality; it becomes greater when it is recognized that with reasonable care the grave defects could have been remedied.

As first assistant to Professor Stilling, in the Pathological Institute at Lausanne, and later under Professor Kocher at Berne, Dr. CROTTI has had opportunities of familiarizing himself thoroughly with the pathology and surgery of the thyroid. Every chapter shows an intimate knowledge of his subject, more particularly, as is natural, of the observations and views of Swiss workers. These are very fully stated—sometimes too fully, as, for example, the discarded hydrotelluric and plutonic theories, of Bircher and Repin respectively, upon endemic goitre. An interesting account is given of the well-known controversy between Reverdin and Kocher regarding priority in recognition of the state of cachexia strumipriva.

But the author's arrangement of his matter is painfully confused. The first chapter, on the anatomy, histology, and embryology of the thyroid, branches off into a classification of thyroid tumours; after pointing out that these are to be divided into the two great classes—those of branchial and those of mesobranchial origin—the author promptly proceeds to tabulate all forms as of branchial origin. A chapter upon clinical symptoms and diagnosis is followed by one on intrathoracic goitre, and this by a chapter on goitre death; then follow in succession chapters upon circular goitre, congenital goitre, simple goitre and pregnancy, the clinical aspect of malignant goitres (so headed but mainly devoted to myxoedema), the pathology of thyroid insufficiency, congenital athyroidism, and "small thyroid insufficiency"; then comes a long chapter of some 55 pages harking back to the etiology of endemic goitre and cretinism. The disorder of this first half of the book is inexcusable.

The author has gathered all that he "considered of value from the enormous amount of French, Italian, German and English literature on the subject"; but though he mentions names freely he does not give references nor supply a bibliography. It is thus impossible to verify his statements. And to add to the reader's irritation he writes not English, but a jargon in which German and French medical terms are given an English dress, according to his personal choice. There is scarce a page upon which one or more atrocities are not to be found, such as "neoformed vesicles," "parastruma" (for "parathyroid goitre"), "alveoli formations," "anoxhemy," "pavimentous epithelium," "motory" (for "motor"), "medullar" (for "medullary"), "bactericide" (for "bactericidal"), "goiterous." In his preface he thanks J. Philip Schneider, Ph.D., Professor of English, Wittenberg College, Springfield, Ohio, for help in proof reading and seeing the work through the press. We do not expect a Professor of English to be familiar with medical and zoological terms; cannot, for instance, hold him responsible for speaking of tunicates as "tuniciers," or teleosti as "temeostiver"; but he might have been expected to see that nouns were not used as adjectives, and not to have passed such expressions as "the liver's epithelium," "unique" (where "single" is meant), "lateral sides of the pharynx" "paroxystic" ("paroxysmal"), "colloid nodules may be singles or multiples," "I operated a malignant adenoma," or "a fibrous cord, called by His the *thyroglossus tractus*, and which extends from the foramen cecum," etc.; "and which" repeatedly offends. We are inclined to suspect that the Professor of English in Wittenberg College must have learnt his English in Germany. What surprises us is that an old and distinguished firm, known for generations for the excellence of its medical publications, should have permitted these errors to pass their proof readers. We can only conclude that in the States, as here, the war has called away invaluable members of the staff and wrought disorganization. The beauty of the illustrations and excellent format of the volume do not atone.

[2] *Thyroid and Thymus.* By André Crotti, M.D., F.A.C.S., LL.D., formerly Professor of Clinical Surgery and Associate Professor of Anatomy at Ohio State University College of Medicine, etc. Philadelphia and New York: Lea and Febiger. 1918. (Imp. 8vo, pp. 567; 96 figures, 33 plates in colour. 10 dols. net.)

FRACTURES AND DISLOCATIONS.

THE influence of war surgery is not greatly apparent in the eighth edition of Professor LEWIS STIMSON's *Treatise on Fractures and Dislocations*.[3] In an authoritative work of this size, in which 482 pages are devoted to the consideration of fractures, it might have been expected that more space would have been given to this important department of military orthopaedics. Professor Stimson writes about gas gangrene in gunshot fractures, but does not refer to tetanus as a complication. Several illustrations taken from Flint, showing the suspension and extension method of treatment, are reproduced, but we think that more might have been said of the excellent work accomplished by the Harvard unit in France, and by the military orthopaedic hospitals in Great Britain. In France and in this country splints devised on the principles of H. O. Thomas's knee splint, with proximal ring, are now being used by the thousand and giving good results, but we have not succeeded in finding mention of them in this book. Nor does the work on fractures of Hey Groves find notice here.

If Professor Stimson's advice as to the treatment of fractures seems to our mind to err on the side of caution and conservatism, yet it is backed by great experience and sound common sense. He is not enthusiastic in praise of open operation, although he recognizes the value of Lane's and Albee's procedures in certain cases.

His prognosis of the functional results after fracture of the long bones appears unduly optimistic when compared with Dent's records of the Metropolitan Police Force and other British statistics; but those published by the American Surgical Association seem to show that the non-operative treatment is generally more successfully carried out in the United States than in England. This may well be the case, for in our medical schools the attractions of brilliant abdominal surgery eclipse those of the humdrum treatment of fractures to such an extent that in at least one of the general hospitals of London fractures are not admitted to the wards. The consequences of this exclusion must be lamentable, for the student at such a school obtains his licence to practise without having any experience in the treatment of fractures of the lower extremity, although he may be well up in the technique of gastro-jejunostomy and other operations of abdominal surgery. The bad average results of treatment by conservative methods have no doubt had great influence with those surgeons who advocate recourse to plating and similar procedures as a routine method. Their advocacy has, we hope, had the effect of calling attention to defects and stimulating those who differ from them to strive after better results by less heroic methods. In considering and comparing results the author wisely says, "The judicious criterion is often to be found in the ultimate function rather than in form."

In cases of fractures in old persons, such as those of the neck of the femur, Professor Stimson thinks that the risk of pneumonia is exaggerated, and that when it occurs it is not due to recumbency, but that it is "a relatively unimportant incident in a general failing of the strength." Some British surgeons, acting on the same opinion, have had good results, while denying the necessity of getting old persons out of bed before the fracture is consolidated.

It is a good many years now since Sir William Macewen demonstrated by careful experiments and clinical experience that the periosteum does not produce bone. We have not yet encountered any record of experiments which confute his conclusions. Yet we still find in surgical literature references to the bone-producing functions of this structure. Professor Stimson speaks of it as "a tissue whose activity in the production of bone is marked," and other references to it show that he is uninfluenced by Macewen's work.

The latter half of this book is devoted to the subject of dislocations and presents a full and adequate account of it. There are separate indexes to fractures and to dislocations, and both of them would be more useful if they were much fuller. The illustrations are many and good. There are, of course, printer's errors, and we hope that in subsequent editions Dr. Albee's name will no more be printed "Atlee."

[3] *A Practical Treatise on Fractures and Dislocations.* By Lewis A. Stimson, B.A., M.D., LL.D. (Yalen), Professor of Surgery in Cornell University Medical College, New York, etc. Eighth edition, revised and enlarged. New York and Philadelphia: Lea and Febiger. 1917. (Roy. 8vo, pp. 946; 475 figures, 39 plates. 6.00 dols.)

ORGANIC COMPOUNDS OF ARSENIC.

DR. GILBERT T. MORGAN, Professor of Applied Chemistry in the City and Guilds Technical College, Finsbury, has written a book on the *Organic Compounds of Arsenic and Antimony*,[4] which will, perhaps, appeal to a limited public but will be of great interest to students of the history of chemistry and to those medical men who care to make themselves acquainted with the constitution and mode of preparation of drugs now commonly in use. As Professor Morgan shows, organic derivatives of arsenic have been under investigation since the earliest times of modern chemistry, and their examination has played an important part in the establishment of current theories of the molecular constitution of matter. It is, however, the therapeutic uses of organic arsenicals which have provoked the more recent activities in the synthesis of these compounds. The fact that corresponding derivatives of antimony have also attracted attention for the same reason has led to their inclusion in this volume.

It was in 1760 that Cadet de Gassicourt stumbled over the threshold of the subject in the course of an attempt to manufacture a sympathetic ink, but it was Bunsen who, in 1837–43, laid the foundations of the knowledge of organic compound containing arsenic. Since then an enormous amount of work has been done, to which Professor Morgan gives references in a chronological bibliography. He takes his reader by gradual stages through the aromatic arsenicals to atoxyl, and then to salvarsan and neo-salvarsan, to the aromatic primary arsines, and to luargol, the salvarsan co-ordination compound with silver bromide and antimony oxide introduced by Danysz. There is a short section on aromatic arsenicals, and the final chapter deals with miscellaneous organic derivatives of arsenic and antimony. The book is completed by an appendix on the estimation of arsenic in organic compounds.

A MEDICAL DICTIONARY FOR LAYMEN.

IT is not an easy thing to write a medical book of reference for the ordinary layman, but it is very important that such books should be written and revised from time to time, for a great deal of suffering and many mistakes might be prevented, and much of the prejudice against the medical profession obviated, if general opinion were better informed as to the nature of the problems with which medicine has to deal. In his *Medical Dictionary*[5] Dr. W. B. DRUMMOND, medical superintendent of the Baldovan Institution, Dundee, has written in the right way. Although it would be easy to criticize the balance of some of the parts—as, for instance, the space given to a somewhat inadequate list of health resorts—we prefer to dwell upon the merits of the book, which are conspicuous. The author has done well to deal with such general subjects as immunity, vaccines, bacteriology, antiseptics, and disinfection, comprehension of which underlies an understanding of so much of modern medicine. Often it is owing to a want of a general knowledge of these subjects that the doctor and the anxious friends of his patient get at cross purposes. To these articles might have been added a fuller account of hormones, the short space devoted to the subject being quite inadequate to afford any intelligible notion to the uninformed reader. A great deal is said about exercises, and this subject, as well as the article on consumption, is copiously illustrated; the illustrations are, in fact, rather a prominent part of the book, and the author has been well advised to reproduce from Saunders's *Hand Atlas of Diseases of Children* very good coloured plates of varicella, rubella, measles, and scarlet fever. The book is one which can be recommended for the purpose with which it has been written—namely, the information of the layman and woman.

NOTES ON BOOKS.

PROFESSOR GLEY is so well known in connexion with the subject that it is most appropriate that his compact and philosophic work on *The Internal Secretions*[6] should be translated into English. This has been successfully carried out by Professor Maurice Fishberg, of New York, who has incorporated several additions specially written for this edition by the author. The work is divided into three chapters, of which the first deals with the general scope and history of our knowledge of the internal secretions; the ecnd, with the distinctive characteristics of the endocrine glands and the principal products of their activities; and the third, with the functions of the glands of internal secretion, first in normal and then in pathological conditions. The reciprocal relations between the various glands are described in clear language, and later the diseases of the ductless glands are divided into two large categories, those of over-activity and those with lessened activity. This book is written by a physiologist, and therefore naturally appeals more to physiologists than to practising physicians.

A PAMPHLET by Viscount Grey of Fallodon on *The League of Nations* has been published by the Oxford University Press (price 3d. net). The main contention of the essay is that it does not follow that a league of nations to secure the peace of the world will remain impossible because it has not been possible hitherto, and the author proceeds to lay down certain conditions which must be fulfilled. The first is that the idea must be adopted with earnestness and conviction by the executive heads of state, and the second, that the governments and peoples of the states willing to found it must understand clearly that it will impose some limitation upon the national action of each, and may entail some inconvenient obligation. He recognizes that the pressure of the league must be more than economic, and that those states that have power must be ready to use the force—economic, military, or naval—that they possess. Some previous attempts in the direction have failed because it was not clearly understood and accepted that violation of the agreement by one or more states did not absolve all or any of the others from the obligation to enforce the agreement.

Dr. REGINALD COCK has published a second edition of his pamphlet, *Counsel of European Nations*.[7] His thesis is that the only proper basis for international relations rests on the recognition of true principles of Christianity. He prints a translation of the Pope's note of August, 1917.

The introduction to Mr. PAUL NASH'S number (III) of *British Artists at the Front*[8] contains a most unhappy simile. Mr. Salis says that Mr. Nash's "comprehension of nature is a thing as born in him as his skeleton." But we can agree that the artist has grasped and depicted what Nature has suffered, and by his landscapes of ruined woods and fields suggests the like devastation that has swept over man. The drawings are powerful and true, if grim; but they deal with grim subjects, and the artist knows for he has served among the ruins. The new number (II) of *Admirals of the British Navy*[8] begins with Admiral Beatty and ends with Vice-Admiral Keyes, who organized the raids on Zeebrugge and Ostend.

[4] *Organic Compounds of Arsenic and Antimony*. By Gilbert T. Morgan, D.Sc., F.R.S. 1918. London: Longmans, Green and Co. (Demy 8vo, pp. xx + 376. 16s. net.)

[5] *A Medical Dictionary*. By W. B. Drummond, M.B., C.M., F.R.C.P.E. London and Toronto: J. M. Dent. (Demy 8vo, pp. ix + 625; illustrated.)

[6] *The Internal Secretions: Their Physiology and Application to Pathology*. By E. Gley, Professor of Physiology in the College of France. Translated and edited by Maurice Fishberg, M.D. London: William Heinemann (Medical Books) Limited. 1918. (Cr. 8vo, pp. 241. 10s. net.)

[7] London: Elliot Stock. (1s. net.)

[8] London: Country Life, Ltd. (5s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

Kerocain.

KEROCAIN is the proprietary name adopted by Messrs. Thomas Kerfoot and Co. (317, Upper Street, Islington) for the British-made novocain now being manufactured by them under licence from the Board of Trade. Messrs. Kerfoot have supplied us with samples for examination, and we find that kerocain is pure para-amino-benzoyl-diethyl-amino-ethenol hydrochloride, identical in chemical composition with the German-made article, and therefore perfectly suitable for replacing it as a local anaesthetic. Kerocain is supplied in powder, solution, and tablet form, the tablets being of various convenient weights, and containing kerocain either alone or in combination with adrenalin.

Dormigene.

Dormigene, which is monobrom-isovaleryl-urea, and is therefore identical in chemical composition with bromural, is now being manufactured under special Government licence by Messrs. Allen and Hanburys, Ltd., and this firm has recently supplied us with samples of dormigene tablets (5 grain) and dormigene powder. Examination of the samples shows dormigene to be pure monobrom-isovaleryl-urea possessing all the chemical and physical

characters of the German article bromural. The therapeutic action of dormigene is therefore doubtless also identical with that of bromural, which has considerable reputation as a sedative and hypnotic.

THE SCOTTISH HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD.

THE fourth report, for 1917, of the Highlands and Islands Medical Service Board[1] states that before the war there was difficulty in securing adequate medical and nursing services for the Highlands and Islands of Scotland. In very few districts had there been anything more than the bare minimum of medical men necessary for the work under normal conditions, and in some areas the medical service had been, for geographical and other reasons, admittedly inadequate; in many districts also the need for skilled nursing was pressing. The medical and nursing services have both been gravely affected by the war. In most instances medical men on active service have been able, with the assistance of the Scottish Medical Service Emergency Committee and the Board, to arrange with colleagues for their work, but the men doing double duty have found the task heavy, and in some instances considerations of health have compelled them to give up the attempt to overtake the additional work. The Board and the Emergency Committee have endeavoured to make temporary arrangements with medical men ineligible for or discharged from military service, with older men who have given up general practice, or with natives of British dependencies who have recently qualified at Scottish universities, but it is now almost impossible to find suitable men for temporary appointments. If a supply of trained nurses were available for the assistance of practitioners at present overworked, the situation would be relieved, but the call for nurses for war work has been not less insistent than for medical men, so that there is now almost as much difficulty in securing the services of qualified nurses as in finding medical men.

The Medical Service.

In 1917, as in 1916, the Board has found it impossible to proceed with the organization of all the branches of work covered by its schemes, but the introduction of a medical service at modified fees to persons of limited means, irrespective of their distance from a doctor, was one as to which steps could at once be taken, and such service was established as soon as the scheme was approved by the Secretary for Scotland. The scheme provides for medical attendance at fees which must not exceed 5s. for the first visit, and 2s. 6d. for each subsequent visit in the same illness, on the families and dependants of insured persons, on uninsured persons of the crofter and cottar classes and their families and dependants, and on others in like circumstances to whom the payment of the practitioner's ordinary fee for attendance would be an undue burden; the maximum fees in midwifery cases to be paid by persons of these classes, including fees for any subsequent visits, was fixed at £1. The essential part of the Board's scheme was that the fees should be the same, whatever the distance of the patient from the doctor's residence, the difference being made up by the Board out of its Treasury grant.

At the start of the scheme, as the Board had no data on which to base a method of remuneration, it arranged as a provisional measure to pay in most cases subsidies representing approximately sums equivalent to the loss that would be incurred by practitioners in working the scheme, and this method may still be employed in suitable cases, but the Board does not consider that in the varying conditions of medical practice it is entirely satisfactory as a permanent means of equitably administering the fund for medical service. As the subsidies now payable to practitioners are, in effect, travelling grants to enable them to attend distant patients at a low uniform rate, the Board considers that a more satisfactory method of payment for the majority of the practices in the Highlands and Islands would be to fix the grant in relation to the actual travelling in work done for the Board. It is recognized that the advance in the cost of travelling has imposed a severe strain upon practitioners in the Highlands and Islands and many representations have been received from all parts of the Board's areas in regard to the inadequacy of the grants, and of the inability of the medical men to carry on under present conditions. The Board admits that these representations deserve very serious consideration in view not only of the increased cost of travelling, but also of the great difficulty in securing suitable men for service in the Highlands, and the heavy responsibilities resting on the men who are doing the work. The Board, in drawing up a special scheme, seems to have been moved partly by a sense of justice, and partly by necessity. The scheme, which has been approved by the Secretary for Scotland, makes provision for the assessment of subsidies on a normal pre-war rate per mile of travelling involved in attending boards and insured persons and for payment of temporary supplementary grants based upon the difference between the normal rate and an increased rate regarded as equitable in present circumstances. The specified rates are payable on miles travelled from the doctor's door, both outward and homeward journeys being reckoned. The grants are to be based under the agreement with practitioners on a normal rate of 6d. a mile, and supplementary grants are to be made for the past year. These will be made (1) up to an amount representing a rate of 9d. a mile on travelling by motor car, motor cycle, horse and trap and boat, and 7d. a mile on travelling by train, ordinary cycle, and on foot. No payment will be made to any practitioner whose grant under his agreement represents higher rates than those specified, except in certain cases—namely (2), in consideration of special circumstances affecting particular practices, and (3) in consideration of the inadequacy of the total remuneration derived from a practice the grant may be supplemented. The scheme for a medical service of modified fees has been in operation in all save a few parishes since the beginning of 1916. The Board has arrangements in force in 141 practices. The estimate of the cost of the scheme for 1917 was £22,000, and the actual expenditure was £21,300. It is estimated that for the special and temporary grants a further expenditure to the extent of approximately £5,000 will have to be met for 1917.

The Nursing Service.

Though the difficulty of securing the services of trained nurses grew during 1917, and no development of the services contemplated can be looked for in existing conditions, no association in the Highlands and Islands in receipt of a grant from the Board was obliged to suspend its activities entirely in 1917, but when a nurse has resigned the associations have as a rule been forced to make temporary arrangements with nurses who have not undergone so long and varied a training as their predecessors. It was recognized in 1916 that there was urgent need for unification of the nursing service if overlapping was to be avoided and economy in administration secured, but so far no progress has been made with the formation of associations on a county or district basis except in the district of Lewis, where some twelve nurses previously in the employment of as many separate local associations are now under the management of the district committee, which acts as the central nursing authority for the island. The district committees, public health authorities, parish councils, and school boards all contribute to the maintenance of the nurses, whose services are available for the treatment of patients for whom these authorities are responsible. Substantial assistance has been received from the Ladies' Highlands Association, the Duchess of Montrose's Scottish Nursing Trust, and the West Coast Mission; residents in the various districts have also made voluntary subscriptions.

[1] Edinburgh: His Majesty's Stationery Office. To be obtained through any bookseller. Price 2d. (Cd. 9060.)

AT the recent congress of the Women's Co-operative Guild at Birmingham a resolution was adopted urging the establishment, under the control of the public health authorities, of a national service of midwives free to all and financed by a 75 per cent. Exchequer grant.

BILLS have been introduced into the New York State Legislature providing for the expenditure of £500,000 to be applied to the construction of buildings to accommodate the insane and feeble-minded. Bills have also been introduced providing for the enlargement of state institutions for lunatics, and the establishment of a psychopathic hospital in New York City.

British Medical Journal.

SATURDAY, JUNE 29TH, 1918.

THE BURDEN OF COSTLY REMEDIES.

WE have received a copy of the decision in an appeal to the English Insurance Commissioners by Dr. F. C. Fisher against the refusal of the Hertfordshire Insurance Committee to repay him the sum of £4 odd, which he had expended in the purchase of tetanus antitoxin for the treatment of an insured patient. The facts of the case were not in dispute. Dr. Fisher found the patient to be suffering from tetanus, and considered it necessary for his proper treatment to administer antitoxin, a supply of which he obtained at once from a firm of wholesale chemists. He had entered into a contract with the Insurance Committee to supply drugs required for those of his insured patients who lived more than a mile from a chemist, the payment being upon a capitation basis; the patient in question was one of such insured persons.

The question at issue was whether the antitoxin administered in this case fell within the category of the drugs and medicines which Dr. Fisher was under obligation by his agreement to provide in consideration of the capitation payment, and therefore without any further payment. The London and Counties Medical Protection Society contended on behalf of Dr. Fisher that the antitoxin was not a drug or medicine within the meaning of the medical benefit regulations, and of his agreement with the Insurance Committee. On this issue the Commissioners offered to give a decision without a hearing, but the solicitors for the appellant urged that opportunity should be given for the case to be argued at a hearing, on account of the importance to insurance practitioners of the issue involved, and the case was accordingly heard.

The Commissioners' decision and the arguments upon which it rests cover nearly ten typewritten foolscap pages. The relevant provisions of the Act and Regulations are recited and compared in order to dispose of the contentions put forward on behalf of Dr. Fisher. Medical benefit is defined in the statute to include the provision of proper and sufficient medicine and such medical and surgical appliances as may be prescribed by the regulations, and it is the duty of Insurance Committees to make provision for the supply of drugs, medicines, and appliances to insured persons in accordance with the regulations. The regulations lay down the circumstances in which arrangements for the supply of drugs (including medicines) may be made with medical practitioners instead of with chemists. Practitioners may be paid for drugs supplied by them for their patients in one of two ways: they may be paid in respect of drugs actually supplied, or, in exceptional cases, in rural areas they may be paid by capitation fees without reference to the nature or cost of the drugs actually supplied. The net effect of the various provisions taken together is held to be that insured persons are entitled, as part of their medical benefit, to a supply of all drugs requisite to their treatment under the Act. Whether a doctor supplying all drugs shall be paid on the one basis or the other is a matter of agreement between him and the Committee.

On behalf of Dr. Fisher it was argued that, while he had agreed with the Committee on a capitation basis for the supply of drugs to the insured persons on his list, yet the antitoxin which was necessary for this particular case was outside the scope of the agreement, either (1) because it was not a drug or medicine, or (2) because, while it might be the duty of the Insurance Committee to arrange for its supply, the agreement between Dr. Fisher and the Committee did not impose a corresponding obligation upon him. The contention that serums and vaccines are not properly included among drugs and medicines is dismissed as contrary both to the intention of the Act and to the opinion of the medical profession generally. The second contention, that Dr. Fisher's agreement did not cover the obligation to provide this substance in consideration of his capitation fees, is likewise dismissed pontifically, as based on a misreading of the regulations. It is ruled that a contract of the kind entered into by Dr. Fisher covers the provision of all kinds of drugs and medicines to which an insured person is entitled as part of his medical benefit, including those which would otherwise than in a rural area be supplied by a chemist. In short, having contracted to be paid on a capitation basis and not for drugs supplied, Dr. Fisher was not entitled to recover the £4 spent by him on antitoxin. The full text of the concluding paragraphs of the decision is as follows:

On the case as a whole, therefore, I find: (1) That antitetanus antitoxin is a drug or medicine to the supply of which the insured person concerned in the present case was entitled in the circumstances of the case, as part of his medical benefit; (2) that if it had not been such a drug or medicine the present appeal must fail, because in those circumstances the Insurance Committee would be under no liability to provide it, and the doctor would have no claim upon them for repayment, and the provision of the substance then would have been entirely outside the scope of the Act; (3) that Dr. Fisher had entered into a contract under which it was his duty to supply to his insured patients all drugs and medicines required as part of their medical benefit; (4) that under the particular agreement into which Dr. Fisher had entered he contracted to be paid for all drugs and medicines supplied to his insured patients by an inclusive capitation payment, and was not entitled, therefore, to be paid separately in respect of the medicines supplied in the present case.

I therefore dismiss the appeal. In doing so I am compelled to comment upon the waste of the time, energy, and money of all concerned, especially the Insurance Committee, that has been occasioned by the insistence upon a hearing in a claim for recovery of money under an agreement, where the facts were not in dispute, and the arguments put forward in support of the claim showed so little attention to the provisions of the agreement as was evinced in the present case.

Dated this seventh day of June, 1918.

J. SMITH WHITAKER.

From the technical point of view this decision may be correct. But since it is partly based on the alleged general opinion of the medical profession we would point out that the Insurance Acts Committee of the British Medical Association, on January 13th, 1916, recorded its opinion that the provision of proper and sufficient medicines as contemplated by the Insurance Act does not include the supply of salvarsan, vaccines, serums, etc. It was further resolved on the same day that, with a view to the proper treatment of insured persons suffering from diphtheria, public health authorities should be urged to use the powers

which they possess, and which most of them utilize, to supply antidiphtherial serum gratuitously.

Since these resolutions were adopted, over two years ago, the State has recognized the principle that certain special remedies which are costly and difficult to procure are not to be reckoned among the ordinary drugs which chemists, and those doctors who supply medicines directly to their patients, should be expected to provide in the ordinary course. A case in point is salvarsan and its congeners. Last year the Council of the British Medical Association, in defining the policy which should be adopted by the Association in the matter of the diagnosis and treatment of venereal diseases, declared that salvarsan and other expensive drugs should be supplied free of cost to all medical practitioners for the treatment of their patients, and this principle was approved by the Annual Representative Meeting.

In order that all persons should be placed in a position to receive what is believed to be the most effectual treatment, the State has, in fact, decided that the special remedies for venereal disease shall be supplied by local authorities, and has undertaken to reimburse them for the greater part of the cost. Again, local authorities—at any rate, all the more enlightened of them—supply not only antidiphtherial serum, but also serums for the prevention and treatment of typhoid fever. We have no doubt that this principle will and ought to be extended, and we have equally no doubt that, though tetanus may not be reckoned as an infectious disease in the ordinary sense in which that term is employed, public authorities ought also to undertake the supply of antitetanic serum. Last year the Lister Institute of Preventive Medicine produced at its laboratories at Elstree 86,647 doses of tetanus antitoxin for the army, the navy, and the overseas forces. The value of antitoxin in the treatment of tetanus was insisted upon by the War Office Committee on Tetanus in 1916, and it expressed its opinion still more emphatically last year, when it said that "in acute general tetanus the best method of treatment lies in the earliest possible administration of large doses of antitoxic serum by the intrathecal route, repeated on two, three, or four days in succession, and combined, if thought desirable, with intramuscular injections." The diversion of the energies of the Lister Institute to the production of tetanus antitoxin for the military forces may well have made it difficult to procure it in the market, and may therefore justify the price stated to have been charged by the wholesale chemists in this case; in view of the strong expression of opinion by the War Office Committee we should have imagined that the Insurance Commissioners, and especially a medical commissioner, would have recognized the obligation to put this means of treatment at the disposal of insured persons. The decision we have quoted seeks to place upon the insurance doctor the obligation to supply this costly remedy under a contract which undoubtedly never contemplated any such large expenditure upon a single item of treatment. It is on this ground that we look upon the decision as inequitable—and not only inequitable, but impolitic, and contrary to the public interest.

Furthermore, we in our turn are "compelled to comment" upon the general tone of this document, and in particular that of its last paragraph. For some time past we have observed with regret a tendency on the part of the Insurance Commissioners, in virtue of certain quasi-judicial functions with which the law has endowed them, to play the schoolmaster to the medical profession. In this instance a responsible professional body raised on behalf of its member a point upon which no definite ruling had hitherto been given. It is one of the specific duties of the Commissioners to hear such appeals, and a magisterial air of reproof was out of place.

INDUSTRIAL HEALTH AND EFFICIENCY.

THE Health of Munition Workers Committee has issued its final report.[1] We make the announcement with some regret, for the Committee, since it was appointed in September, 1915, has done a great amount of extremely valuable work. The problems which it had to investigate were not indeed new, for they have been studied more or less by all industrial nations. In this country during the last twenty years great progress has been made under the Factory Department of the Home Office in many of the essentials of health in the workshop, and for several years before the war employers were showing that they had begun to recognize the importance of humanizing the life of the industrial worker and providing better conditions. But the Committee not only rendered existing information available in the long series of its reports, but instituted investigations which have yielded most important results. In spite of all that had been done in the critical examination of certain dangerous trades much remained to be learnt as to the effects of occupation on the rates of sickness and mortality, even in males, while as to women and young persons reliable data were almost wholly lacking. So also was information as to the relation of fatigue to disease, and as to the proper length and distribution of hours of labour, and the relation of these data to output. We have from time to time, as the various memorandums were published, endeavoured to indicate what the Committee had accomplished, but, considerable as has been its achievement, much remains to be done. In this final report the opinion is expressed that it is necessary to make arrangements without delay for a national scheme of industrial medical research and to accord full recognition to the importance of industrial hygiene.

The work of the Committee has been concerned with an emergency, but the munition worker is a type of all workers, and as we have frequently endeavoured to show, the principles at which the Committee has arrived concern, in fact, all forms of industrial labour. Such problems cannot be solved by medical investigation alone, for they are intimately related to larger social and industrial problems, but they cannot even be accurately stated without it. The question of shorter hours of labour is regarded as lying near the root of the whole labour problem; further, the conditions of women's labour raise social and economic issues of vital importance to the future of the race. Again, the solidarity of industrial society—the interdependence of employers and workers—is closely related to the whole issue of the status, health, and physical equipment of the worker. Finally, there is the title of the worker to an effective voice in determining the conditions under which he works. "If industry," the report says, "be indeed a national service, the object of those engaged in it is the good of the community as a whole, and the worker should have a fair and legitimate share in the responsibility of the transaction."

If we regret the disappearance of the Health of

[1] *Industrial Health and Efficiency.* Final report of the Health of Munition Workers Committee. Ministry of Munitions. His Majesty's Stationery Office. (Cd. 9065.) To be obtained through any bookseller. Price 2s. net.

Munition Workers Committee, it is largely because it has shown itself possessed of the influence and force to get the necessary inquiries carried out and has displayed fine scientific judgement in the choice of subjects for inquiry and the selection of investigators. The work needs to be continued, and we can only hope that the Advisory Committee recently appointed by the Minister of Munitions may be able to convince the Ministry that without further investigation the advice it will be able to tender will be of diminished value. It is true that one result of the work of the late committee was the establishment in January, 1916, of a welfare section of the Ministry of Munitions, which early last year was reorganized under the direction of Dr. E. L. Collis, a medical inspector of factories, and a member of the Health of Munition Workers Committee. The new department is responsible for all matters concerned with the health and welfare of munition workers in national as well as in controlled factories, including the medical problems involved in the prevention of T.N.T. poisoning, and the maintenance of the health of those employed in the manufacture of lethal gasses. Its sphere also covers the conditions of life of munition workers outside the factory, and the inspection of the large number of temporary hostels. Recently it has been taking steps to deal with the various maternity problems which arise in munition areas. Provision has also been made to enable the section to undertake research, and the collection of the accurate knowledge on which administrative action should be based. Another step of importance was taken when, under a recent Act, the Home Office was empowered to make orders requiring special provision to be made at a factory or workshop for securing the welfare of workers, including such matters as the preparation and taking of meals, the supply of drinking water, protective clothing, ambulance and first aid arrangements, and the supervision of workers.

The report now issued by the Health of Munition Workers Committee is comprehensive, and its perusal will on all the main heads supply inquirers with the information contained in the various memorandums issued from time to time, and in the report on industrial efficiency and fatigue published in February, 1917. The Committee recognizes that during the industrial revolution which came about in England during the nineteenth century there was a tendency for the fantastic conception of Samuel Butler, the author of "Erewhon," to be realized, and for the man to be made subservient to the machine. The Committee is convinced that to secure harmony and smooth working, efficiency, and maximum output, the machine must be made subservient to the man, for it is his life, mental development, and moral well-being which guarantee effective labour. Physical health is the basis, and its physiological justification must be a correct understanding of the part played by nutrition, by rest, by fatigue, and by general conditions affecting health, if waste is to be avoided and maximum energy attained. This is true, because physical health is necessary to mental well-being, and is at the basis of social and moral development. The matters dealt with in the report concern the future as well as the present, and are among the root problems for latter-day preventive medicine, which has as its object the removal of the occasion of disease and physical inefficiency, combined with the husbanding of the physical resources of the worker in such a way and to such a degree that he can exert his full powers unhampered, with benefit to himself and his countrymen.

OUR THREE THOUSANDTH NUMBER.

THE present issue, which completes the first volume for the year, is the 3,000th number of the BRITISH MEDICAL JOURNAL. This numbering does not include the issues of our forerunner, the *Provincial Medical and Surgical Journal*, which was taken over by the Association at an early date in its history. The Provincial Medical and Surgical Association was founded on July 18th, 1832, by Sir Charles Hastings, at a meeting of fifty medical men in the board room of Worcester Infirmary, and for some years afterwards a volume of *Transactions* was issued annually. The first number of the *Provincial Medical and Surgical Journal* appeared on October 3rd, 1840. Though privately edited, it was circulated weekly among the members, and in 1844 it was taken over by the Association, and became its official organ. Eight years later, at the annual meeting in Oxford, it was decided that the JOURNAL, which was then being published fortnightly at Worcester, should again be issued weekly, and should be edited and published in London; the first number under the new arrangement appeared with the title of the *Association Medical Journal*, at the beginning of January, 1853. In 1856 it was unanimously resolved that the name of the Association should be changed to the British Medical Association, and in conformity with this decision the first issue for 1857 bore the title BRITISH MEDICAL JOURNAL, No. 1. In July, 1867, the JOURNAL was enlarged, and during the next half-century its scope was greatly widened and the number of pages in each weekly issue increased to meet the growing needs of the Association, the steady increase in its membership and influence, and the progress of medical science. Thus the JOURNAL took its place among the foremost medical periodicals of the world. The Epitome of Current Literature was added in 1892, and in 1903 the publication of the Supplement was begun. In January, 1906, the size of our page was increased and its shape changed to that with which members are now familiar. Since the beginning of the war the number of pages has steadily diminished through the operation of causes over which the Association has no control, and the tinted cover introduced in 1906 has this year been dropped for the same reason. The war has seriously affected the production of the JOURNAL owing to the untoward economic and commercial conditions it has brought about. In particular, the regulations and orders of the Paper Controller, made under the Defence of the Realm Act, have steadily curtailed the amount of paper available, so that there has been no alternative but to make a corresponding reduction in the number of pages in the weekly issues of the JOURNAL and Supplement. The new order of the Paper Controller, which came into force on March 1st, was of a most drastic kind. It reduced the amount of paper and paper-making materials which might be imported to half the tonnage imported in the previous year. This reduction took effect on a supply already reduced by one-third; consequently the Council was compelled to reduce still further the number of pages in the weekly issues of the JOURNAL. At the present time the total number available for text, Supplement, and advertisements is only 64, whereas the number of pages available before the war for the text, Epitome, and Supplement alone ranged from 80 to over 100, while the number of advertisement pages equalled or exceeded those figures. Only those who are actually engaged in the work can be expected fully to realize the difficulties that have to be faced nowadays week after week by the editorial and business staffs. Without undue self-praise we may fairly claim that, within the limits imposed by war restrictions, the JOURNAL of to-day continues to represent British scientific medicine as it should be represented, whilst helping to fulfil the primary duty of the great organization of which it is the mouthpiece—namely, the maintenance of the honour and interests of the medical profession.

THE EDUCATION OF BLINDED SOLDIERS.

WE have received a copy of the third annual report of St. Dunstan's Hostel for Blinded Soldiers and Sailors, and are indebted to Sir Arthur Pearson for some observations elicited by a paragraph published in our columns of May 4th, p. 513, giving an account of what was being done in Germany for the same class of men. The fact that the report before us is the third, and is for the year ending March 31st, 1918, is sufficient to show that the work was taken in hand in this country early, and what has been accomplished proves that it was organized on the right lines. To Sir Arthur Pearson belongs the credit not only of having started and supervised the whole organization, but also of having infused into the institution a spirit of hope and courage which cannot fail to impress, and not a little to astonish, every visitor. The governing idea is to teach the blinded man to work and, if possible, to return him to his original industry or occupation. But at the threshold an important principle has to be recognized, which is that to work under the handicap of newly inflicted blindness imposes a very much greater mental strain than those who can see would imagine. It is owing to the recognition of this principle that the working day has been made short, and the satisfactory result is that the men acquire their knowledge and learn handicrafts with remarkable speed. The hours of work are from 9.30 to 12 in the morning, and from 2.30 to 4.30 in the afternoon, with an optional extra hour in the afternoon. The men who work in the class-room in the morning are in the workshop in the afternoon, and vice versa. In the class-rooms they are first taught to read Braille, the facility with which they acquire it depending not only upon their intelligence, but also upon the sensitiveness of their touch; they also learn to write in Braille with the aid of an ingenious machine. Typewriting is also taught in the class-rooms, and it is found that almost all men can rapidly learn to turn out very accurate work. The typewriters used are Remington machines, with the addition of a Braille scale, and a special machine for men with only one hand has been built by the Remington Company after consultation with the experts of St. Dunstan's. Typewriting, however, is, as a rule, taught as a means not of occupation but of communication. When he has passed the writing test, every man is given his own typewriter, and the National Library for the Blind has made arrangements for lending for a man's life any quantity of Braille literature. Cobbling, an occupation for the blind very little practised until it was developed at St. Dunstan's, is now followed by a large number of men. A blind man in the course of six or seven months can learn to sole and heel a pair of boots as well as it can be done, and the men who have left the hostel are making good earnings. They are also taught mat-making to fill in time when cobbling is slack; it is the easiest of the occupations for the blind, and some men learn it only. Basket-making, the oldest of the staple industries for the blind, is taught also, the men being trained to make a good variety of saleable baskets. Another industry taught in the workshops is joinery, but unless a man has followed that trade before his disablement he is taught to make only easily saleable articles, such as picture frames, trays, corner cupboards and ornamental tables; these they turn out as well and quickly as can a sighted workman. Poultry farming, which seems an unlikely industry for blinded men, has proved very successful; the men can distinguish birds of different breeds almost instantaneously by touch, manage incubators and foster-mothers, prepare and truss birds for table, and generally conduct a poultry farm on commercial methods. Provision is also made for men who do not wish to follow an ordinary manual occupation, and the most surprising result is that they can become shorthand writers, using a small ingenious machine which enables Braille in its most condensed form to be taken down at a speed equal to that of the ordinary shorthand writer. The notes are written out on the typewriter. A man with a good knowledge of Braille writing and typewriting can be trained to be a telephone operator and can obtain employment in business exchanges, where the drop-shutter system is in use. Lastly may be mentioned massage, which is very thoroughly taught, and is said to be the one occupation which a well trained blind man is able to follow not merely as well as, but even better than, a man with sight. The students are given preliminary teaching in anatomy, physiology, and pathology at St. Dunstan's, and then pass to the massage school of the National Institute for the Blind. Finally, men in the more advanced classes are allowed to massage patients in some of the leading London hospitals. The men are all required to pass the examination of the Incorporated Society of Trained Masseurs, and so far none has failed. At the last examination one of them passed second of the 320 entrants. In the paragraph to which we have referred it was stated that the blind masseur in Germany was a failure, owing, it was suggested, to the fact that the Germans distrust him. Sir Arthur Pearson expresses surprise at this statement, and adds that about forty men from St. Dunstan's are now practising massage with the highest degree of satisfaction to themselves and to the patients. He also informs us that he entirely disagrees with the principle of sending blinded soldiers to existing institutions for the blind. The plan was tried in Canada and Australia, but found unsatisfactory, and some of the men who had returned are now being sent back to St. Dunstan's. Finally we may agree with him that the German estimate of 2,000 in the spring of 1917 as the number of men coming within the definition of blindness ($V = \frac{1}{25}$) accepted by the German War Office must be an under-statement. The English figure at that date was about 800 and the French 2,500. The doctrine of averages, which applies to the nature of casualties as to everything else in human life, would make it probable that the number of Germans blinded in the war must be greater than the number of French. However this may be, we may conclude this notice by expressing the opinion that the work done at St. Dunstan's Hostel is of a nature in which this country may take just pride.

THE SCIENCE OF RATIONING.

CAPTAIN M. GREENWOOD has added to his reputation as a medical statistician by the issue of three valuable papers. The first, published by the Medical Research Committee, gives the results of the investigation of the composition of dietaries with special reference to the dietaries of munition workers.[1] The second, on the efficiency of muscular work, was published in the *Proceedings* of the Royal Society. The third, an epidemiological study of the food problem, was communicated to the Royal Society of Medicine. In the first, a joint publication with Viscount Dunluce, the authors give a useful summary of modern dietetic investigations not to be found elsewhere in so concise and convenient a form. This critical summary will be of great value to those who want to know the scientific foundations of rationing and the worth of the evidence on which it is based—the work of Voit, Rubner, Atwater, and others. "When," say the authors, "the body lives on itself it is rigidly economical. So soon as its ready money (the normal reserve of carbohydrate in the liver and muscles) has been spent and the first-class securities in its bank (the body fat) have also been realized and spent, it reduces its establishment. The less vitally essential cells are allowed to fall in pieces and the ruins used to stoke the furnace, for which no fuel can be purchased. But if the body is given building material (protein), it passes directly from pessimistic economy to optimistic schemes of reconstruction. The demolished cells are rebuilt without regard to the fact that this will again increase the demands for more fuel of the body

[1] BRITISH MEDICAL JOURNAL, April 27th, 1918, p. 484.

as a whole. Hence it may happen that a supply of protein will paradoxically not satisfy but increase the cravings for food, because it will lead to the re-formation of cellular units, which will then demand supplies of energy, rather than be itself used only as fuel for the reduced establishment." Reduction of mass of living cells and a low protein diet is the way the Germans withstand their war shortage; their children, stunted by low feeding, may be expected to grow to full size when the full time comes. The authors give details of the working class dietaries in war time, and the war time dietaries of Germans. The installation of canteens and the "eat less bread" campaign together led to the eating of much more fat and protein, the more expensive constituents, by the munitioners than was customary before the war. The collected data show that 3,500 calories in food, as purchased, is the requirement of workers engaged on moderately strenuous tasks. The consumption, as far as calories are concerned, does not appear to have changed during the war. The compulsory rationing has rightly brought down the fat and meat consumption and put up that of foods rich in carbohydrate. Of the epidemiological study in which Captain Greenwood was associated with Miss Cecily Thompson we gave an account on February 23rd (p. 239) and March 16th (p. 317), and noted that the reduction of the diet in Millbank Penitentiary in 1823 led to scurvy and the death of many prisoners. In his paper on the efficiency of muscular work Captain Greenwood, after mathematical analysis of available data, concludes that "within fairly wide ranges simple formulae of linear regression describe the relations subsisting between heat production, body mass, and work performance with an accuracy sufficient for such purposes as roughly computing the energetic needs of workers doing the kind of work studied." "No law connecting heat production and work performance can be properly formulated until the range of experimental observations under uniform conditions has been carried below the starting point of existing records."

HAEMORRHAGIC SPIROCHAETAL BRONCHITIS.

VIOLLE has reported[1] that during the first three months of this year he saw in a naval hospital near Toulon thirty cases of bronchitis due to infection by a spirochaete. The disease was first observed by Castellani in Ceylon in 1906. Waters described numerous cases in India (1909), and cases have also been observed by Branch in the West Indies and by Jackson in the Philippine Islands. Castellani described it as occurring in two forms—acute and chronic; the latter was sometimes the sequel of the former, but apparently in the majority of cases the onset is insidious. He describes the expectoration in the acute cases as scanty and mucous in character, and in the chronic cases as muco-purulent, but not abundant. The most striking characteristic, however, is that frequently for several days together the expectoration contains blood intimately mixed with the muco-pus. In some cases there is genuine haemoptysis, one or two teaspoonfuls of blood, or even more, being expectorated, and hectic fever may be present. Physical examination reveals very little beyond a few dry or coarse râles. The possibility of error in diagnosis is obvious, and it is not surprising to hear that some of the cases were admitted into the naval hospital with a diagnosis of suspected tuberculosis. Violle states that in his cases the expectoration contained innumerable spirochaetes varying in form and dimensions, some long and fine, others short and thick; sometimes with well-marked close spirals, sometimes with only delicate undulations; Castellani considers it probable that several varieties of spirochaetes are concerned. Very often no other organisms were seen, although in other instances various microbes were noted. Further, Violle agrees with Castellani in stating that the bronchial affection may become complicated by pneumonia, bronchopneumonia, or tuberculosis, the lesions produced by the spirochaete opening up the way for the more lethal bacilli. The prognosis appears to be good, but the disease may last for a long time, even years, and Violle states that relapses frequently occurred in his cases. The disease is, he believes, very contagious. He assumes that it was imported into France by Chinese or Indo-Chinese labour companies, or by troops that had been for some time in the Levant. He considers it probable that the parasite may become acclimatized in France, at any rate in the south, and notes that a quarter of his patients were French. The life cycle of the parasite is not known, but in one stage it appears to produce coccoid bodies, and Violle believes that it is by them that the contagion is disseminated.

[1] *Bull. de l'Acad. de Méd.*, T. lxxix, p. 429.

EGYPTIAN OPHTHALMIC HOSPITALS.

THE Fifth Annual Report on the Ophthalmic Hospitals of Egypt (1917), by the Director, Mr. A. F. MacCallan, F.R.C.S., shows a steady increase in the amount of work undertaken by the ophthalmic service. The number of new patients in the year under review (1917) increased by 19 per cent. The number of out-patient attendances in the year reached 1,004,161. The number of the blind persons seen remains the most striking feature of the report. No fewer than 13,996, or 13.9 per cent. of all the patients examined, were blind in one or both eyes; 4,611 were blind in both. The report notes that in Egypt blindness in one eye is not nearly such a serious disability as in European countries. It is true that it is impossible for a person so affected to enter the Government service as a clerk with rights of pension, or to get some of the technical jobs as handicraftsman; but it is remarkable how well some men who are blind in one eye only manage to do work that requires a good judgement of distance. Blindness in both eyes entails little of the misery which it entails in European countries. In Egypt, not only are blind people well cared for by their kin, but, thanks to the sun, do not suffer from cold. Owing to the large number of blind in Egypt, it would be highly uneconomical to undertake charitable provision for them on any large scale when the prevention of blindness is so meagrely endowed. The most effective measure that can be taken for the prevention of blindness will be the provision of hospitals where early cases of acute conjunctivitis can be dealt with. The report contains further matter on the correlation of temperature and conjunctival infections, which supports the previous conclusions that the summer rise in temperature is the precursor of epidemics of severe conjunctivitis.

STATE MILK CONTROL.

THE Committee on the Production and Distribution of Milk, of which Major Waldorf Astor, M.P., is chairman, has expressed the hope that the Government will give effect to recommendations made last February, that state control of the wholesale distribution of milk should be instituted as a temporary measure. This opinion was expressed in a letter covering the report of a subcommittee, over which Mr. Wilfred Buckley presided, with reference to the control of the collection, utilization, and distribution of milk sold wholesale. The main recommendations of the subcommittee, which have been endorsed by the committee, are designed to ensure the maintenance of the milk supply, the economical handling of milk, its equitable distribution, and the full utilization of surplus supplies for manufacturing purposes. It proposes that Great Britain should be divided into suitable areas, each under a milk superintendent acting under the instructions of a central authority in London, with a separate Advisory Committee for Scotland. It is proposed that a national clearing house should be set up in London to control the wholesale trade of the country, employing persons, firms, or societies, with authorized wholesale agents as far as may be necessary. The clearing house would take over existing contracts between wholesalers and producers, but would interfere as little as

possible with direct contracts between producers and retailers; such contracts should, however, be subject to the supervision and approval of the milk superintendent for the area. All churns in the possession of wholesale dealers other than retail delivery churns should be acquired by the clearing house, which would encourage producers to form co-operative associations for the purpose of improving the conditions of milk production and the manufacture of cheese. Finally it is recognized that milk should be produced and supplied under improved conditions, so that it may be cleaner and more wholesome when it reaches the consumer. The subcommittee recommended that in appointing traders to be agents of the Ministry of Food the Government should at once obtain an option to purchase the business of such traders at a fair value, since experience may ultimately show that it will be necessary for the state to become the sole wholesaler of milk, a development the subcommittee considers desirable. This last recommendation was not accepted by the full committee, which believes that before coming to any decision on the point more evidence is required both with regard to the financial terms and to the practical effects of purchasing the entire wholesale milk trade of the country. The committee, however, recognized that steps should at once be taken to determine the basis on which the interests concerned could be acquired should this be deemed advisable. The inquiry would involve the consideration of compensating the interests concerned for any damage done to them by control, without actually purchasing such interests.

THE FUTURE OF THE MEDICAL PROFESSION.

THE Cavendish Lecture of the West London Medico-Chirurgical Society, on the future of the medical profession, will be given by Major-General Sir Bertrand Dawson, G.C.V.O., C.B., M.D., on Thursday next, July 4th, at 8.15 p.m. It is, we understand, Sir Bertrand Dawson's intention to deal with the subject in a comprehensive way, since he is of opinion that the progress of knowledge and the needs of the community have combined to render the present organization of the medical profession in many respects inadequate. Preventive and curative medicine should be closely related in thought, teaching and organization, and the earlier preventive treatment of disease must come to occupy a more prominent position. The investigations which must be made to this end will call for special equipment and collective rather than individual effort. Sir Bertrand Dawson believes that an increase of special institutions is necessary, and he will consider at length the various types required. All members of the medical profession are invited to attend the lecture, which will be given at the West London Hospital, Hammersmith, and it is hoped that laymen interested in the subject will also feel disposed to be present.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.

THE Oxford Ophthalmological Congress will hold its ninth annual meeting at Oxford on Thursday, July 11th, and Friday, July 12th. As in former years members will be accommodated in Keble College, but as the number of rooms available is limited application should be early made to the Secretary. The proceedings will take place in the department of Human Anatomy in the University Museum, kindly lent for the purpose by Professor Arthur Thomson. The scientific and commercial museums will also be held in the same building, which is close to Keble College. The members will meet informally at dinner in the College at 8 p.m. on Wednesday, July 10th. On Thursday morning the Master of the Congress, Mr. Sydney Stephenson, will welcome the members at 10 o'clock and will give an address on the history of the Congress. Sir William Collins will deliver the Doyne Memorial Lecture, and will afterwards open a discussion on ophthalmology and the war, in which the following will take part: Lieut.-Colonel R. H. Elliot (London), Captain E. H. E. Stack, Miss Marion Gilchrist (Glasgow), Dr. Charles Killick (Maidstone), Dr. T. Harrison Butler (Leamington Spa), Major G. H. Pooley, Mr. V. Cargill (London), Captain P. H. Adams, Captain Percival J. Hay, Captain Thomson Henderson, Major Cecil Clements, Mr. Bernard Cridland (Wolverhampton). On Friday, July 12th, papers will be read by Sir William Barrett, F.R.S. (London), Colonel S. Hanford McKee, C.M.G., C.A.M.C., Lieut.-Colonel R. H. Elliot, Dr. T. Harrison Butler, Captain Thomson Henderson, and Captain Percival J. Hay. In the scientific museum demonstrations of new ophthalmic apparatus will be given by Sir William Barrett and others, and there will also be on view a collection of pathological specimens, photographs, and radiograms. On the same afternoon cases will be shown at the Eye Hospital by Captain P. H. Adams and others, and a discussion will follow. Those desirous of attending the Congress are requested to communicate with the honorary secretary, Mr. Bernard Cridland, at Salisbury House, Wolverhampton.

THE usual half-yearly indexes to the JOURNAL and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or both of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Acting Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C.2. Such copies will be dispatched shortly after the middle of July.

WE commend to the special notice of our readers the letter on page 735, in which Sir Rickman Godlee makes a moving appeal on behalf of the Belgian doctors in Belgium.

Medical Notes in Parliament.

National Service Medical Boards.

MEDICAL boards and the National Service. system of grouping were criticized in the Vote of Credit Debate in the House of Commons on June 20th.

Sir Herbert Nield, chairman of the Middlesex Appeal Tribunal, maintained that Grade I for the older men was the equivalent of Class A under the earlier system for the younger. Further, he said, there was no guarantee that once a man was in the army he might not be put to any service duty, and it was therefore the more important on that account that a man should be sure of his category upon going into the army. He regretted that the memorandum containing twenty-four specific directions that the medical board, in grading under the head of Grade III, could sub-divide so as to indicate whether a man should be put to auxiliary service or labour or sedentary occupations, was withheld from the tribunals. Within the last four weeks four hundred applications had been made in Middlesex for appeal from the medical board to the medical assessors. Since November, no fewer than 30 per cent. of such applications in Middlesex had resulted in reduced grading.

Sir Donald Maclean, replying to an observation made by Sir Auckland Geddes last week, quoted words from the circular of the Ministry of National Service, wherein it was said that "Grade I is generally equivalent to Category A, General Service, of the old classification." Such a system did not test men as to their physical fitness for the work of the army, but applied a physical test as to whether men were in Grade I of their particular range of ages. The proper test, he insisted, was the old A classification, which had worked admirably. It had worked so well that the Appeal Tribunal of which he was chairman had sent down without the slightest fear any number of cases to the ordinary medical board. Now, however, Grade I was not to be Grade I according to physical fitness but Grade I of age, and that, he held, was trifling with the House. The Grade I man, as he was at present being passed, was a Grade II man of the old and proper standard, and a Grade II man of the new standard approached nearly every time to a Grade III man of the old standard. If men were going to be put into the army on the lines of Grade I and Grade II as now set forth, all the men of the other class should be re-examined and sent into the army as well as men of 44, 46, and 48. Out of 132 applications with which the London War Pensions Committee had to deal, in no fewer than 87 the reason for discharge from the army—sickness or physical disability—was stated not to be caused by or aggravated by army service. These men had no sort of appeal to the Government for monetary assistance and no right to a pension. They ought not to have been in the army. The complaints from which

they were suffering included chronic bronchitis, deformed ankle, deformed foot, hernia, phthisis, tuberculosis, chronic suppuration.

Sir Auckland Geddes, in his reply, said that the terms Grade I, Grade II, Grade III were introduced to convey a different meaning from categories A, B, and C, and they were defined differently, but in order that during the period of transition there might be some linking up between the old system and the new, general equivalents were stated for the men of the ages then under consideration. This was last autumn. These general equivalents had no bearing, and could have no bearing, in the case of men who had never been categorized. Men who had been graded were graded in accordance with the principles laid down, and the definitions of those grades had been most carefully drawn up. The instructions giving all the conditions that should exclude and the conditions which should allow a man to be included in any grade filled twenty-eight pages. The clause had been quoted which said that men who fulfilled the conditions named for Grade I were fit for general service in the army, but there was also the instruction that the physical training of the men was to be carried out under medical supervision. The system under which the service was working had been misunderstood. Every man required two indices to place him in the proper place in the posting chart. He required his grade and then his age, and it was the combination of grade and age which settled a man's place in the square and the service he was to render. The actual posting was a matter for the War Office, but the two departments worked closely together. The only thing that medical men could do was to judge upon the physical signs whether he was reasonably fit for his age. The system was introduced last autumn, and, according to Sir Donald Maclean, had worked satisfactorily then. Therefore it did not seem to him that the system was wrong. He admitted, however, quite freely that the results of the medical boards of the last few weeks had given grave cause for anxiety. He reminded the House of the very great number of examinations being carried out. A very large number of medical men were being employed—thousands—and a quarter of an hour of medical time was allowed for every examination. It was not possible to examine every man in a quarter of an hour, nor was it necessary to examine every man for a quarter of an hour. Many cases could be dealt with in two or three minutes, because the man was either rejected or was obviously of the lowest grade which could become available for service. Men in Grade III of the new age period were not being called on, so that it was not necessary to submit them to an elaborate examination. It was about six or seven weeks since he first became alarmed as to what was happening at some of the medical boards. In the last few weeks he had visited twenty-four places in different parts of the country, and he could say that in the country as a whole the work that was being done was eminently satisfactory. Sir Auckland Geddes next referred to a letter by the Commissioner for the London region issued on May 3rd, wherein it was stated that the medical board was to be cut down to two members and the president, and that the men were to be examined by one examiner, who was to refer questions of doubt to his colleagues. This letter was a most unfortunate mistake, but a copy reached the Ministry in the ordinary routine, and the Chief Commissioner at once had it cancelled. He interviewed the Commissioner for London, who at once summoned the whole of the chairmen of the medical boards, explaining that a mistake had been made. The reason for different results by London boards was, he thought, that every one had felt the pressure of the German offensive. There had been no difference in the instructions, but it had been found necessary to slow down the London board. In conclusion, Sir Auckland complained that there had been a good deal of unfair criticism, but claimed that on the whole good work was being done.

Mr. Tennant, in a few friendly words, said he should be very sorry to add to the difficulties which Sir Auckland Geddes had to face, but he thought it was imperative that the medical boards of the National Service Ministry should choose only men who were fit for positive duties in any part of the field in France unless they were ear-marked for work behind the lines, or were not allowed to go to the front at all.

It was agreed that the vote for the Ministry of National Service should be put down for June 27th, and that the discussion should then be resumed.

Maternity and Child Welfare Bill.

SECOND READING DEBATE.

The second reading of the Maternity and Child Welfare Bill was moved in the Commons on June 24th by Mr. Hayes Fisher. As already stated, it proposes to extend to England and Wales powers already enjoyed by local authorities in Scotland and Ireland, which in Scotland have proved of considerable benefit. The policy had originally been worked out by voluntary effort, but every year it had grown more popular with local authorities. In 1914–15 the expenditure by local authorities was £10,439, and by voluntary bodies £1,049. In 1917–18 the expenditure by the local authorities had jumped up to £92,985, and that of voluntary bodies to £29,301. The sum voted by the House of Commons for the present financial year was £230,000, or nearly double. The scheme of the bill was that any local authority to which the Act applied might make arrangements, subject to the approval of the Local Government Board, for attending to the health of prospective and nursing mothers and of children under 5 years not being educated in schools provided by the Education Board. He believed that it was better to have schemes operating over large areas; but it was left to the Local Government Board to say, after consulting the county councils, whether particular powers should be exercised by a county or a district council. Each council exercising the powers was to set up a committee to which powers might be delegated, and it was recommended that something like one-third of each committee should be co-opted from persons with special knowledge of the subject. Under the bill the authorities would be able to provide crèches and day nurseries. They would also be able to establish convalescent homes for nursing mothers and children under 5 years. They would be able to establish homes and make other arrangements for attending to the health of children under 5 years old of widowed, deserted, and unmarried mothers. Another power was to provide home helps and other assistance for securing proper conditions for the confinement of necessitous mothers. Authority would also be given to provide midwives and maternity nurses for necessitous women, and for areas in need of this service. Lastly, direct authority was given to provide maternity and welfare centres. Some authorities showed timidity in exercising their powers; the bill would secure them. Mr. Fisher said he had visited a perfect maternity and welfare centre. It had a whole-time doctor, four health visitors, a dental clinic, a hospital for the more difficult cases of confinement, a centre to which pregnant women could go for advice, and a centre from which food and milk could be distributed under the certificate of the M.O.H. to women who were necessitous or who could not obtain proper food and milk for their condition. The centre also had a maternity home in which were sixteen beds. If used for a fortnight by each mother they would provide for 240 women a year. The whole expense to the borough was only a farthing rate. Referring to the opposition which came from those who thought that the passing of the bill would prejudice the introduction of a bill for a Ministry of Health, he said that the bill was not a substitute for the Ministry of Health Bill, which in its main outlines had been approved by the Government; this would be proceeded with, but adequate time must be given to it, and it could not be dealt with this session, but there might be an autumn session. He pleaded with members, while using all their efforts to get a Ministry of Health Bill passed, not to delay the passage of this little measure. The powers under it would afterwards pass to the Ministry of Health.

Major Astor moved the rejection of the bill, on the ground that it would be unsatisfactory unless accompanied by the establishment of a Ministry of Health, which, he submitted, might be set up by a three clause measure. The first clause would put under one head the Local Government Board and the Insurance Commission; the second and third would give power to transfer to it the health functions of other Government departments, and to transfer from it the non-health functions transferred to it by the first clause. The non-health functions of the Local Government Board could be transferred to the Home Office. Major Astor spoke at some length on the present separation of various health functions under different departments and of the overlapping of such work. The Minister of Reconstruction had been reported as saying some time ago that he thought he had got substantial agreement upon the Ministry of Health, and would be ready to introduce the bill. Lord Curzon, speaking recently, was understood to have said that the establishment of the Ministry of Health was being delayed by departmental jealousy. If so, was not this a case for intervention by the War Cabinet? The rejection having been seconded by Major Hill, Mr. Anderson (Labour), while agreeing that Mr. Hayes Fisher would have done better to bring forward a larger measure, thought the matter could not be allowed to wait. Sir H. Harris also felt that there was a certain value in the bill, which should not be lost. Mr. Walsh renewed the definite promise made by him on behalf of the Local Government Board that the measure would in no sense whatever be used to prevent the bringing in of a larger measure, and the second reading was given.

Venereal Disease: Regulation 40 D.—In reply to Mr. Lees Smith, on June 25th, Mr. Macpherson stated that the War Office Conference on Venereal Disease, of which he was chairman, included amongst its members the Archbishop of Canterbury, the Rev. Dr. F. B. Meyer, and Lord Sydenham, in addition to representatives of the French military authorities, the American army and navy, the Dominions, and the British navy and army. In the course of a short debate, on June 19th, Mr. Macpherson stated, in regard to Regulation 40 D, issued under the Defence of the Realm Act, that he had arranged this conference to consider what further action could be taken to prevent the spread of venereal disease amongst soldiers. Regulation 40 D constituted it an offence for a woman to communicate venereal disease to soldiers or sailors. The regulation had been made in consequence of representations by the Dominion authorities at the last Imperial Conference. He denied that under the regulation women might be taken up for solicitation. The power for arrest on such charge obtained under the existing law. The Government believed that the regulation was useful and might prove effective, and therefore he could not say it would be withdrawn. He did not allow that the disease was more prevalent amongst the military than amongst the civil population. Mr. Macpherson added, in reply to further questions on June 25th, that he thought that the Conference was thoroughly representative, and he was not disposed to add representatives of women's organizations.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Wounded.

Surgeon G. E. D. Ellis, R.N.

ARMY.

Killed in Action.

CAPTAIN P. B. SEWELL, A.A.M.C.

Captain Phil. B. Sewell, A.A.M.C., whose death in action we announced in our issue of May 25th, enlisted immediately on passing his final examination at Melbourne University in 1916. He proceeded to France in August last, and served with a field ambulance and an Australian infantry battalion. While accompanying the latter into action on the night of April 24th–25th he appears to have been hit by a machine-gun bullet. His commanding officer writes of his efficient work throughout the winter in watching over the health of the battalion; in all operations he proved himself a gallant, cheerful, and capable officer and a good comrade.

LIEUTENANT A. M. CLARE, R.A.M.C.

Lieutenant A. M. Clare, R.A.M.C. (formerly C.A.M.C.), was reported as killed in action, in the casualty list published on June 19th.

Died of Wounds.

CAPTAIN R. A. PRESTON, R.A.M.C.

Captain Richard Amyas Preston, M.C., R.A.M.C., died on June 7th, of wounds received the same day, aged 27. He was the second son of the late Mr. H. E. Preston, M.I.C.E., and was educated at the London Hospital. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914, graduated M.B., B.S.Lond. in the same year, and afterwards filled the post of assistant house-surgeon of the Poplar Hospital. He joined the Special Reserve of the R.A.M.C. as lieutenant on August 6th, 1914, two days after war was declared, and was promoted to captain after a year's service. On February 5th, 1917, he took a permanent commission as lieutenant in the R.A.M.C., was promoted to captain a year later, and for some time past had been acting as a temporary lieutenant-colonel. He received the Military Cross on June 23rd, 1915.

Died on Service.

CAPTAIN D. T. O'FLYNN, R.A.M.C.

Captain Dominick Thomas O'Flynn, R.A.M.C., died of appendicitis, on service abroad, on June 16th, aged 35. He was the fifth son of the late Mr. Edward O'Flynn of Cork, was educated at Queen's College, Cork, where he was senior medical exhibitioner, and took the diplomas of L.R.C.S.I. and L.R.C.P.I. in 1906. He took up the asylum service, and held the post of assistant medical officer at the Isle of Man Asylum, and at the London County asylums at Cane Hill and Hanwell, successively. He took a temporary commission as lieutenant in the R.A.M.C. towards the end of 1915, and was promoted to captain after a year's service.

The casualty list published on June 24th reports the deaths on service of Captains J. T. W. Boyd and W. F. Hale, both of the Canadian Army Medical Corps.

Wounded.

Major C. W. M. Hope, R.A.M.C. (temporary).
Captain A. E. A. Burkhard, R.A.M.C. (temporary).
Captain J. M. McCloy, R.A.M.C. (temporary).
Captain E. S. Meyers, Australian A.M.C.
Captain F. J. Miller, Australian A.M.C.
Captain C. G. Templeman, Australian A.M.C.
Captain G. W. Will, R.A.M.C. (temporary).

Missing.

Captain F. C. H. Bennett, R.A.M.C. (temporary).
Captain J. M. Mackenzie, M.C., R.A.M.C. (temporary).

Prisoner of War.

Captain A. H. Little, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Goodchild, Stewart John, Second Lieutenant K.S.L.I., reported wounded and missing on March 28th, but later reported killed in action. He was the eldest son of Dr. N. J. Goodchild of Highgate.

Johnston, Paul Hedley, Lieutenant R.F.A., only son of the late Dr. J. H. Johnston of Nottingham, died of wounds, June 11th, aged 20.

Quill, Maurice Desmond, Captain Royal Marine Artillery, elder son of Surgeon-General R. H. Quill, A.M.S.(ret.), of Cheltenham, died of fracture of the skull caused by a fall from his horse, at the Royal Naval Hospital, Haslar, on June 17th, aged 22. He got his commission in October, 1913, was mentioned in Lord French's dispatch of November 30th, 1915, and was promoted to captain in November, 1917.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

AMONG the recipients of honours for meritorious services (Supplement to the *London Gazette*, June 21st) are the following members of the medical profession:

D.S.O.

Surgeon (Acting Staff Surgeon) Edward Leicester Atkinson, R.N.

In recognition of his services as Senior Medical Officer of the R.M.A. Howitzer Brigade since May 26th, 1916. He has carried out his duties with the greatest zeal and energy, and has shown an excellent example by his fearlessness and devotion to duty. He has been twice wounded, and would have been relieved but for his strong desire to remain at his post.

Surgeon (Acting Staff Surgeon) William Bradbury, R.N.

In recognition of his services with the Royal Naval Division in Gallipoli and France. As Medical Officer of the Hawke Battalion, Royal Naval Division, in Gallipoli, he did exceptionally good work, often under the most trying circumstances.

Distinguished Service Cross.

Surgeon Henry Brice Parker, R.N.

In recognition of the exceptionally good work done by him as Medical Officer of the Nelson Battalion, Royal Naval Division, in Gallipoli.

The following awards are announced in a Supplement to the *London Gazette*, dated June 22nd, in recognition of "conspicuous gallantry and devotion to duty in the field":

D.S.O.

Captain (Acting Lieut.-Colonel) Robert Bernard Price, R.A.M.C.

Prior to the division going into action he took over the duties of Assistant Director of Medical Services at half an hour's notice. When on one occasion all casualty clearing stations in the neighbourhood of the division were withdrawn, his improvisation on the previous night of an emergency casualty clearing station further to the rear proved of such inestimable value that a large number of casualties were able to be dealt with, and all the wounded evacuated with the utmost dispatch. Owing to his resource, forethought, and exceptional powers of organization, the smooth and successful evacuation of all wounded was carried out during the period of twelve days' heavy and continuous fighting in which the division was engaged.

Bar to the Military Cross.

Captain John Henry Pearson Fraser, M.C., R.A.M.C.

During the evacuation of a town he was in charge of a train loaded with stores and equipment. While the train was standing in the station without an engine it was heavily bombed by enemy aeroplanes. With bombs falling all round he secured an engine which had just backed into the station and coupled it to the train. He then collected a few men and cleared the permanent way of masses of débris caused by the bombs, and eventually got the train away safely under continual bombing by enemy aeroplanes. By his courage, determination, and resource in a most difficult situation he succeeded in saving the whole trainload of equipment. (M.C. gazetted February 4th, 1918.)

Temporary Captain Frederick Theophilus Hill, M.C., R.A.M.C.

Several hundred casualties of all branches of the service were passed through his unit during the day, and were evacuated promptly, thanks to his zeal, energy, and efficient organization. When the enemy were advancing his unit was the last to leave the neighbourhood, and finally withdrew, when ordered to do so, and when every case had been evacuated, to join the division. He displayed outstanding devotion to duty. (M.C. gazetted June 23rd, 1915.)

Captain (Acting Major) Herbert Stewart Milne, M.C., R.A.M.C.

When in charge of an advanced dressing station, in spite of continuous shelling, he dressed and superintended the evacuation of the wounded during three days' operations with great success. When a shell fell among a party of men, killing three and wounding fourteen of them, he succeeded in dressing the more severely wounded and in getting them all removed to a place of safety before the next burst of fire fell in the same spot. By his courage and resource he undoubtedly saved a further loss of life. (M.C. gazetted June 3rd, 1916.)

Temporary Captain Matthew Arnold Swan, M.C., R.A.M.C.

When the majority of his stretcher-bearers had become casualties and his advanced post had received two direct hits from shells he stayed at his post, dressed the wounded and supervised their evacuation. On many other occasions he has shown the greatest courage, coolness and initiative, and his conduct has at all times been exemplary. (M.C. gazetted June 3rd, 1916.)

Military Cross.

Temporary Captain Warren Fullerton Clark, R.A.M.C.

Whilst the battery was being heavily shelled two men were badly wounded. He at once proceeded out into the open, attended to these men under the most intense shell fire, carried them into a trench, and remained with them until an ambulance arrived. He showed magnificent coolness and an utter disregard of danger.

Temporary Captain John Norman Cruikshank, R.A.M.C.

He attended to the wounded under heavy fire during an enemy attack. His skilful organization of stretcher-bearers and his coolness and determination in a most difficult situation resulted in the saving of many lives.

Temporary Captain Andrew Ferguson Horn, R.A.M.C.

He led his bearers forward to the front line during a heavy enemy attack and brought back many severely wounded men through the enemy's barrage. Throughout the operations he displayed splendid coolness and courage under heavy fire.

Captain John Francis Hill, R.A.M.C.(S.R.).

He worked throughout the day under incessant shell fire, attending to the wounded during an enemy attack. Owing to his coolness and skill in a most difficult situation, many lives were saved.

Quartermaster and honorary Captain R. D. Matthews, R.A.M.C., is awarded the Military Cross for conspicuous gallantry and coolness during a hostile bombing raid.

Surgeon Andrew Harman Pearce, R.N., is among the officers mentioned in dispatches (*London Gazette*, June 21st).

Surgeon-General James L. Smith, C.B., M.V.O., R.N., has received the decoration of Officer of the Legion of Honour conferred upon him by the President of the French Republic.

The *London Gazette* of June 25th notifies that in the list of appointments to the Order of the Companions of Honour announced on June 3rd the name of Sir Frederick Treves, Bt., G.C.V.O., C.B., should be omitted at his own request.

NOTES.

Auxiliary Hospitals and the Use of Crutches.

"M.O." writes that men sent from general to auxiliary military hospitals sometimes return from the latter in worse condition than they went, owing, as he thinks, to injudicious coddling by well-meaning ladies. Some are thus made neur-asthenics. But the special point he makes is that the men may be allowed unnecessarily to use crutches until the knee becomes ankylosed in semiflexion and the foot dropped.

Invaliding in the Austro-Hungarian Army.

The Austro-Hungarian Minister for War stated in December, 1917, that with every year of war the "general percentage of recoveries" had improved. In the first year it was 78 per cent., in the second year 83 per cent. In the first year 13.5 per cent. of the casualties proved fatal at the front, 2.2 per cent. at home. In the second year these figures were reduced to 7.7 per cent. and 1.7 per cent. respectively. The incidence of cholera, typhus, and typhoid fevers and dysentery was reduced by about one-half in the second year as compared with the first. Owing to the invasion of Albania, the incidence of malaria had doubled in this period, and measures had been taken to prevent the introduction of malaria to the Monarchy. The incidence of trachoma and venereal disease also showed a rise. From other statements it appears that down to December, 1917, about 200,000 Austro-Hungarian soldiers were classified as "invalids." This figure represented 20 per cent. of all cases undergoing "after-treatment" (Nachbehandlung). That 80 per cent. of soldiers subjected to "after-treatment" should have been sent back to the army is claimed as a success. Only a small fraction of the 200,000 invalids were totally unfit for work. Of all the wounded, about 85 per cent. returned to the colours, 10 per cent. to their former occupations, and only 5 per cent. were invalided; and of these, again, only a fraction was totally invalided.

Apparatus for Fractures.

Before the war Miss Grace Gassette was an artist in Chicago. Very early in the struggle she joined the nursing staff of the American Hospital at Neuilly. There her capabilities as a deviser of splints and her powers of organizing a workshop were happily discovered and utilized, and she became the head of the department of dressings and apparatus. The exigencies of the war having taken away the orthopaedic mechanicians from the Paris hospitals, and the French surgeons also having become dissatisfied with the usual methods of treatment of compound fractures, nerve injuries, and the like, Dr. Paul Reynier asked Mrs. Austin, the Vice-President of the American Committee, for help. Miss Gassette thereupon organized and took over the technical direction of the workshops of the Franco-American Corrective Surgical Appliance Committee, which has since sent out more than 10,000 apparatus for the treatment of fractures, and altogether more than 30,000 separate appliances. The principles of the suspension-extension apparatus, largely based on the work of H. O. Thomas, and the overhead bed frame used at Neuilly, are now pretty well known to orthopaedic surgeons. They are described in a communication made to the French Academy of Medicine by Dr. Paul Reynier[1] and in a pamphlet by Dr. Gaston Mouzel,[2] published by the Franco-American Committee. The illustrations in both articles make clear the nature and use of these appliances. Dr. Reynier says that some of the apparatus are entirely of Miss Gassette's own invention; others have been so simplified and modified by her that she may fairly claim them as her own.

[1] *Bull. de l'Acad. de Méd.*, T. lxxix, No. 21.

[2] *Notice sur les appareils pour fractures de guerre.* 1918. Paris: Comité Franco-Américain contre les impotences fonctionelles (17, Rue Boissonade).

Correspondence.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

SIR,—The Belgian doctors in Belgium are in great distress, and I have been asked to put their case before your readers. I know that it is not a favourable moment, because the members of the Association have been so recently canvassed for the special appeal of the Royal Medical Benevolent Fund; moreover, living is dear, and the tax-gatherer is always knocking at the door. But the matter is urgent, as they will see if they read this letter to the end.

In 1914, when the needs of the Belgian doctors and pharmacists were proclaimed by the committee of which I am the chairman, there was a noble and generous response from the doctors and pharmacists in this country and the Dominions. Nearly £20,000 was raised before the end of 1916, but now our coffers are almost empty, and, in spite of our repeated efforts, in which you, Sir, have most kindly helped us, the flow of subscriptions has almost stopped. I will explain how the money has been spent and why we are asking for more.

At first we had to assist the Belgian doctors and pharmacists who had fled to this country, but for a long time their requirements have been trivial. In 1916, at the earnest entreaty of Mr. Herbert Hoover, who at that time was the Director of the Commission for Relief in Belgium, we began to send every month £800 to a committee in Brussels called the Aide et Protection aux Médecins et Pharmaciens Sinistrés Belges. These monthly remittances were continued until January, 1918, but since then they have been reduced to £400, and if we cannot raise more funds, even these must stop after July.

Do British doctors and pharmacists really know (1) that money is urgently needed, (2) that it goes to Belgium, and not to doctors and pharmacists in this country, and (3) that it really reaches the Belgians and is not pocketed by the Germans? If they did they would surely never allow these remittances to be stopped.

In order to satisfy those who may be holding back because they have their doubts on these three points, we have obtained the most recent information from the Commission for Relief in Belgium. Writing on June 18th, Mr. Lewis Richards, the Assistant Director, says:

> There has been no change in the method of sending in these subsidies, a method with which your society is already familiar. I need hardly remark that the charities thus in receipt of subsidies through our channels are most carefully administered, and there is no possibility of any leakage on the way. I would like, however, to repeat—nor can we emphasize this point too strongly—that the need of help for Belgium grows with every day and the reports which we receive from all branches of the work are nothing short of heartrending. In this connexion we think you will be interested in reading an appeal which we recently received from a commission of doctors in Belgium, asking for various medicines. You will see from this letter the difficulties against which the medical profession in all its branches have to contend.
>
> Your fund is one which reaches a class which cannot be helped in any other way. For the most part the professional men are too proud to come to the public soup-kitchens, and after four years of terrible privation any little savings which they may have had are by now exhausted. But they will and do most gratefully receive help from your fund, and with the assistance thus given them goes a most comforting feeling that their happier colleagues overseas are not forgetting them, a feeling which brings moral support, as money brings them material comfort.
>
> We most warmly beg you to continue your splendid support to the Belgian doctors and pharmacists, whose need is unquestionably terrible, and whose gratitude, although under present conditions it cannot be expressed directly to you, is most real and heartfelt.

The appeal which he encloses is a request "for the importation into Belgium of a certain amount of medical supplies of both vegetable and chemical origin, of which there is a total lack, and the absence of which constitutes a real danger to the public health." It is supported by a precise explanation of the manner in which the needs of the population are gauged, and of the way in which the distribution is carried out.

This document has determined our committee, though reluctantly, to approach the general public. It has been asked why the public should assist the medical more than

any other profession, but it may be answered that doctors adequately provided with drugs are essential for the maintenance of the health of the people, and the limitation of those epidemics which are common when starvation and oppression go hand in hand. May I suggest that if your readers would not only themselves give what they can spare, but would make personal appeals to their wealthy and benevolent patients and friends, the difficulties of our committee might be overcome?

We need a large sum; but it is to pay a debt owing to our hardly entreated brothers. Do we forget that they are in these straits because they are citizens of a country which, in 1914, with nothing to gain except the world's respect, and everything except their honour to lose, stopped the German rush and so saved this Empire and France and civilization from a catastrophe the magnitude of which we perhaps even now do not altogether appreciate?—I am, etc.,

RICKMAN J. GODLEE,
Chairman of the Belgian Doctors' and Pharmacists' Relief Fund.

London, W., June 24th.

Subscriptions may be sent to the Honorary Treasurer, Dr. H. A. Des Vœux, 14, Buckingham Gate, London, S.W.

MILK SUBSTITUTES.

SIR,—May I now clear up some difficulties in the preparation of a liquid food from oats? It is evident that when there is a shortage of cow's milk we require for many invalids, and indeed for others, a food which is at once a liquid, very easily digestible, inexpensive, very easily prepared, and without any strong flavour. It need not be a complete food, any more than cow's milk is, for it would not often be the sole food, except temporarily, as in brief febrile states.

Such a food can be most simply made from oats as follows:

Instructions.—Boil three ounces of fine oatmeal in a double sancepan for at least an hour. Then cool to 140° F., and stir in two or three teaspoonfuls of extract of malt, or of finely ground malt. The jelly-like mass will quickly change to a syrupy liquid. Let it remain for an hour at the same temperature. It is then ready for use, and should measure one pint.

This liquid oatmeal has much the same composition as cow's milk, except that there is a deficiency of fat and some little of protein. It has lost most of the oatmeal flavour. It is not so white as cow's milk, but the cost for materials is clearly little if anything over a penny a pint. F. W. Rixon, Ph.D., of the University of Bristol, gives the approximate values of a properly made specimen as:

Liquid Oatmeal.		*Average Cow's Milk.*	
Total solids	13.1 %	... ...	12.6 %
Protein	2.3 %	... ...	3.4 %
Fat	1.0 %	... ...	3.74 %
Maltose	6.7 %	Lactose	4.7 %
Starch	3.2 %	... ...	—
Mineral matter	0.27%	... ...	0.75%

Slight variations, due to the kind and quality of the meal used, may occur.

The shortage of fat cannot be made up from oatmeal alone, for oats themselves do not contain the quantity required. If we wish for a good material having practically the same composition as cow's milk some other substance must be added. Dr. Rixon suggests the addition of one ounce of crushed peanuts as almost the only available source in the present war time of protein and fat. This gives a better milk, but doubles the cost, as peanuts are 1s. 4d. a lb. We can make up the deficiency of fat again by cooking with it half an ounce of cocoa fat, if the chocolate flavour is appreciated. The extra cost will be three farthings a pint, but the fat is not emulsified. Some improvement in smoothness and taste can be obtained by straining through muslin and squeezing the residue dry, especially if a fine oatmeal cannot be got. However, the process is not only tedious and apt to lead to errors, but in any case it results in a great loss of protein and mineral matter. Hence straining should be avoided and a well-ground fine oatmeal used.

The liquid may be drunk as it is, or mixed with cow's milk. For some purposes an inexpensive flavouring agent may be desired. A vanilla nut may be used several times over, or a drop of the extract, lemon rind, or bay leaves will serve the purpose. In the absence of a thermometer the temperature of 140° may be judged by noting that a finger can just be dipped in the mass without pain.

I do not suggest that liquid oatmeal has all the physiological properties of cow's milk, or that it can replace it as a food for young children or in special diseases, but it is undoubtedly a valuable food. In conclusion, I have to thank Drs. O. C. M. Davis and Rixon and other experts for most kind advice and assistance in the various trials we have made.—I am, etc.,

Clifton, Bristol, June 24th. GEORGE PARKER.

THE RELATION BETWEEN HEAT-STROKE AND MALIGNANT MALARIA.

SIR,—Having read Captain C. E. H. Milner's interesting article (June 8th, p. 638) on the close relation between heat-stroke and malignant malaria, and seeing that he expects—and, indeed, invites—adverse criticism, I have ventured to enter the field.

I have had five years' experience of heat-stroke cases and malaria in North-West Punjab military cantonments, especially Mian Mir. It has been my opinion that heat-stroke and malignant malaria are separate and distinct diseases, though everyone knows that a case of malaria may develop heat-stroke.

Captain Milner's charts would suggest plasmodium infection rather than heat-stroke, especially Chart 2. The usual uncomplicated heat-stroke case, seen just with temperature of, say, 110°, comes down under energetic treatment to about 102° in within half an hour or so; a few hours later the case is liable to relapse again, possibly twice; and if the temperature is once more successfully reduced it usually stays down—indeed, is often subnormal—and there is not a slight temperature for a few days as seen in Captain Milner's charts.

It has been my experience that a patient with true heat-stroke practically never reports sick, usually having been in fair health to the day on which he is struck down, or at most has been feeling out of sorts, and is found later lying unconscious.

On the other hand, the patient with crescents in his blood has usually been feeling and looking ill before the attack of hyperpyrexia comes on, and generally actually reports sick at hospital before he reaches the hyperpyrexial stage.

I have seen cases such as Captain Milner describes which I have thought to be heat-strokes until I found crescents in the blood, and in several fatal cases *post-mortem* examination showed cerebral blood vessels absolutely clogged with accumulated malignant malaria parasites, visible to the naked eye as a grey débris.

On the other hand, heat-stroke cases with nothing found in their blood before death have afforded no evidence of malaria in spleen or brain *post mortem*. The blood was examined in all cases of hyperpyrexia, and if crescents were found the case was looked upon as a possible oncoming cerebral malignant malaria, and quinine was then used vigorously. Many cases of heat-stroke were new to the station, and gave no history of malarial infection.

I would like to know how Captain Milner accounts for cases of heat-stroke in soldiers who have not even risked infection, and who have developed heat-stroke a few hours after landing in India. I believe the troop train disaster in India, in which there were many fatal cases of heat-stroke, is a case in point. I certainly have seen many patients with heat-stroke who gave clear evidence of never having had malaria, and never having been exposed to infection.—I am, etc.,

H. BEADNELL, Major R.A.M.C.

St. Anne's-on-the-Sea, June 12th.

PRECAUTIONS AGAINST THE SPREAD OF MALARIA.

SIR,—The importance of Dr. Fielding-Ould's statement (p. 683) that "quinine given with a rising temperature only tends to increase headache and malaise" cannot be too much emphasized.

I have confirmed this valuable clinical fact many times, and would have liked Dr. Fielding-Ould to have been more dogmatic in his statement.

Quinine positively does harm when so given, and in some cases will even produce haemoglobinuria. In districts where blackwater fever is prevalent it is of vast importance to recognize this, both as regards treatment and prognosis.

I am of opinion that the case mortality of true blackwater fever would be found to be very much higher were this differential diagnosis made, many cases of so-called blackwater fever being simply quinine poisoning. These cases nearly always do well under treatment, hence the importance of distinguishing them from that most deadly disease.

The prevailing custom of drenching every case of pyrexia in malarious districts, or patients who have formerly lived in malarious districts, is a very bad one. Quinine is our specific for malaria, and, if given scientifically, will cure the condition; but the diagnosis of malaria, as shown by examination of the blood and the presence of the parasite, should be established before quinine is given. Diagnosis first; then treatment, and by hypodermic injection.

If this procedure is systematically carried out we would hear far less of the inefficacy of quinine. I have one case particularly in mind—that of a man who was kept in hospital for a week suffering from gonorrhoeal septicaemia; he was treated with intramuscular injections of quinine. He left hospital of his own accord and consulted me. A few days' rest in bed, with active antigonorrhoeal treatment, brought down his temperature and stopped his sweats. This occurred in Nigeria.—I am, etc.,

STANDISH J. WATSON, M.B., B.Ch.,
Late Medical Officer, N. Nigerian Chamber of Mines.

Swansea Valley, June 19th.

ADAPTATION AND DISEASE.

SIR,—Professor Adami seems unable to appreciate the difference between the views published by him in 1901 with regard to the influence of internal secretions on the germ cells and the hormone theory published by me in 1908. This inability is probably due to the fact that he has never done me the honour to read my paper, and that he is not acquainted with my other researches and publications on the question of the influence of external conditions in evolution. My theory is concerned with the origin of definite structures and morphological characters, such as the antlers of stags; Professor Adami, as in his own quotations from himself, considered only "intoxications" and constitutional states, such as the gouty diathesis.

The term hormone is not merely, as Professor Adami supposes, another name for metabolites or internal secretions, but is a name given to internal secretions which were discovered by physiologists to have the function of acting as a special chemical stimulus on other organs, either causing glands to secrete, or actually determining the development of large and important structures. Thus the development of the antlers of stags and the secretion of milk after parturition were shown to depend, not on some obscure nervous stimulus, as formerly supposed, but on a chemical stimulus due to some substance produced by the generative organs. Professor Adami makes no allusion to facts of this kind in his paper of 1901. The fact that the development of antlers depends on an internal secretion from the testes led me to formulate the theory that the antlers originally arose from the inheritance of a hypertrophy caused by the mechanical irritation of skin and periosteum due to the fighting of the stags, and that this hypertrophy involved the production of additional "metabolites" which, acting on the germ cells, in time caused the hereditary development of the same hypertrophy. To assert that my theory was the "enunciation of conclusions reached by Adami in 1901 regarding metabolites and, as we subsequently became accustomed to term them, hormones, and their influence upon the germ cells," is a gross perversion, and the attempt in this way to transfer any credit due to me for originality to himself by virtue of his 1901 paper, was what I stigmatized as audacity.

My theory of 1908 was the logical sequel of the views published by me in 1900 in my book *Sexual Dimorphism in the Animal Kingdom*. In it I discussed the evidence for the conclusion that secondary sexual characters, at any rate in most cases, were the result of external stimulations and irritations, producing hypertrophy or modifications of growth which had become hereditary, but were only actually developed in relation to the functional activity of the generative organs. Long before this I published[1] a record of experiments which proved the production of pigment on the lower sides of flat-fishes under the influence of light, results which in my opinion afforded indirect evidence that the absence of pigment on the lower side in normal flat-fishes was due to the heredity of the effect of an external condition.—I am, etc.,

London Hospital Medical College, June 12th. J. T. CUNNINGHAM.

[1] *Phil. Trans. Roy. Soc.*, 1895.

⁂ We have referred this letter to Professor Adami, in order that a controversy which has already occupied much space may thus be brought to an end. Professor Adami writes as follows:

SIR,—The objurgation "*Pereant qui ante nos nostra*—" is natural, and one with which all can sympathize. It is, nevertheless, not for publication, and the state of mind which evokes it, while it explains, does not excuse the employment and reiteration of offensive epithets.

The dominating problem of evolution during the nineteenth century, around which there raged the keenest controversy, was that of the inheritance or non-inheritance of acquired characters. Towards the end of the century it was becoming evident to some of the more acute and independent among the zoologists and botanists that purely morphological conceptions were inadequate to afford a solution. Thus, as he points out in his letter in your issue of June 15th, my old friend and teacher, at the end of the seventies, Professor M. Hartog, had, in 1898, recorded his opinion that the mechanism of heredity must be rather chemical than particulate. Mr. Cunningham, as he points out in the letter to which this is an answer, was in 1900 evidently verging towards like views.

To the best of my knowledge I was the first to publish, with the beginning of the new century, a definite chemical theory of inheritance based upon what we know regarding the constitution of complex organic substances. Doing this, I was the first to point out that through acquired alterations in the internal secretions the germ cells could become affected in their constitution along the same lines as were the body cells, and that through this endogenous and direct method we could comprehend the mechanism at work in the observed transmission of acquired constitutional states.

If, seven years later, Mr. Cunningham invoked the same mechanism of alteration in the internal secretions and their influence upon the germ cells to explain another order of inherited acquirements, the priority in demonstrating the *modus operandi* of the direct or identical inheritance of acquired bodily states still remains mine. It is no argument to urge that constitutional states are vague and unsatisfactory. They may be so to the morphologist. But then the morphologist is not the only one concerned in the study of heredity. To the student of medical science these constitutional states—the gouty diathesis, the diabetic, the neurasthenic, etc.—are not merely real but widespread and matters of daily observation. Mr. Cunningham himself admits that certain internal secretions influence the growth and relative development of particular organs; it is alterations in these same internal secretions that are the basis of these constitutional states.

Whether or no others later arrived at the same conclusions independently—and quite probably they did—I am wholly justified in claiming priority, and because of that priority in speaking of these as my conclusions. The statement is strictly correct, and I repeat it, that since 1901 my conclusions regarding metabolites and their influence upon the germ cells have been enunciated by several prominent biologists, including Mr. Cunningham, without note of my earlier contribution.—I am, etc.,

London, W., June 24th. J. G. ADAMI.

CEREBRAL OEDEMA.

SIR,—It is surprising that a paper so important as that on the above subject by Mr. L. Bathe Rawling (JOURNAL, May 4th) should so far have passed without comment. Mr. Rawling is surely to be congratulated on having written an article which is valuable from giving a tangible reason for symptoms which have hitherto been attributed to that rare but frequently diagnosed condition, "cerebral congestion." It throws an added light on oft misunderstood signs, objective and subjective, which have led to the suspicion and erroneous diagnosis of cerebral tumour, abscess, and tuberculous meningitis. He should be congratulated, too, on the success of his operations, particularly

in those cases with the more pronounced epileptic symptoms, a success which points to a cause of epilepsy not often suspected, and to an adequate reason for the futility of the bromide treatment in cases arising from such cause. His paper, however, is disappointing in respect of the fact that we are kept completely in the dark as to the part the kidneys may play in the causation of cerebral oedema. Mr. Rawling has been too anxious to limit or circumscribe the entire source of the trouble to the cerebral area, though he mentions the absorptive capacity of the cerebral veins as being impaired by disease as well as by injury, and points out, though somewhat reluctantly, that toxic conditions of the cerebral fluid may be responsible for convulsive attacks. The basis of reasoning underlying statements of this kind should not have overlooked a possible defective activity of the eliminative powers of the kidneys, both as to water and to toxins, and so far from the primary cause, as Mr. Rawling suggests, being "(? temporary or permanent changes in the walls of the cerebral veins)," it would have been well, except in cases of heat-stroke or sudden injury, to have looked to the kidneys as much the more likely primary cause, leading to the disordered or diseased condition of the cerebral vessels as the secondary cause, with cerebral oedema as the ultimate result. Even in heat-stroke it is of the highest probability that the differences of resistance to this malady depend upon the healthy or unhealthy condition of the kidneys.

The scientific value of his paper would, therefore, have been immeasurably enhanced had he given the result of the systematic examination of the urine as to quantity, quality, and specific gravity. To have watched a case daily which he suspected to be one of cerebral oedema and to have ordered all the available narcotics, the effect of which was merely momentary and that of the slightest, suggests the thought that it would have been worth a trial to have prescribed some one or other of the available diuretics, and the effect might have been benefit of considerable duration provided the diuretic selected had been one of those which act without raising the blood pressure. In Mr. Rawling's cases the blood pressure rose to 140 or 150 mm. Hg, "no great rise" according to Mr. Rawling, but one would think such pressure distressingly high in a hot climate where the average blood pressure must necessarily be lower than normal. Hence it may not be unscientific to suppose that injections of pilocarpin with a view to its pressure lowering and diaphoretic effects or possibly a venesection, would have made all the difference between misery and comparative comfort to those patients who dreaded and refused operation.—I am, etc.,

Liverpool, May 25th. WILLIAM BRAMWELL.

MAJOR-GENERAL SIR W. G. MACPHERSON, A.M.S.

SIR,—In connexion with the recent changes in the Army Medical Service in France, and the mention with appreciation of the distinguished services of the late Director-General Sir Arthur Sloggett, large numbers of the medical officers out here would have been gratified if the name of Sir William Macpherson had been coupled with him.

This latter officer has been constantly in touch with medical units, more particularly in the front areas, ever since he came to France; his genius for organization and keenness to improve the professional side of the work and untiring energy in every way will be sadly missed as time goes on.

The age limit has dealt a heavy blow to the B.E.F. medical service, which is the admiration of all, and for which little short of the lion's share has fallen to the lot of Sir William Macpherson.—I am, etc.,

June 18th. TEMPORARY.

*** Major-General Sir W. G. Macpherson, K.C.M.G., C.B., who accompanied Sir Arthur Sloggett to France as Deputy Director-General Medical Services in 1914, has been appointed Deputy Director of Medical Services the Southern Command. This command covers a very extensive area, including the greater part of England south of the Thames and west of Portsmouth, as well as the counties of Warwick, Worcester, Gloucester, Oxford, and Buckingham.

PRON reports that he has observed good results from the use of adrenalin in patients suffering from dyspepsia with gastric atony. Discomfort, pain, and weight after meals disappear. He gives 8 or 9 drops of 1 in 1,000 solution.

Obituary.

WE regret to record the death, on June 22nd, of Professor HENRY GEORGE PLIMMER, F.R.S., past president of the Royal Microscopical Society, pathologist to the Zoological Society, and the first holder of the recently-founded professorship of comparative pathology in the Imperial College of Science and Technology. He was born in 1857, and studied medicine at Guy's Hospital, obtaining the diploma of M.R.C.S. in 1882. After serving as prosector in anatomy at the Royal College of Surgeons, he held for some years the posts of pathologist, bacteriologist, and lecturer on pathology at St. Mary's Hospital. He was the author of many important publications in English and German on microscopical science and comparative pathology, and did valuable work on the Sleeping Sickness Committee of the Royal Society. Beyond his scientific work, Professor Plimmer was a man of many and varied accomplishments; he was well known in the musical world as a distinguished student and performer, and his personal charm and kindness of heart endeared him to a wide circle of friends.

DR. JEREMIAH READER, of Wakefield, who died on May 29th, was born in 1854, and spent his childhood and youth at Winfirth, in Dorset. He was educated at Sherborne School, and at Guy's Hospital, and qualified in 1877. During his school and hospital days he was a fine all-round athlete. At Guy's he was one of the pioneers in developing the athletic side of student life, but none of these activities in any way distracted him from the serious work of his profession. His first practice was in Marshfield, Gloucestershire, where he held the post of district medical officer for the Chipping Sodbury Union, and, with the exception of a short interval after the sale of this practice, he was a Poor Law medical officer up to the time of his death, having held the appointment in the Wakefield Union for many years. He married in 1880; his wife and three children survive him. His two sons are in the medical profession, and both volunteered for active service at the beginning of the war, receiving commissions in the R.A.M.C. early in 1915. Dr. Reader's death was due to influenza and pneumonia. He had been overworked for some years, and the war added many worries to an already arduous practice. He is greatly lamented by the poor of the city, and the workers, on whom he spent himself.

DR. MILLER SEMPLE, who died at his residence in Dennistoun, Glasgow, on June 9th, aged 55, received his medical education at the University of Glasgow, where he graduated M.B., C.M.Glasg. in 1884, and at Dublin and Vienna. He had held the offices of resident surgeon and resident physician to the Glasgow Royal Infirmary, and for a long period was surgeon to the Steel Company of Scotland at Blochairn. He took great interest in medical administrative work in Glasgow, and was a member of the Glasgow Burgh Insurance Committee as well as of the Glasgow Eastern Division of the British Medical Association. Dr. Semple leaves a widow, two sons, and a daughter.

NEWS has been received of the death, on May 19th, at Nakuru, British East Africa, of Dr. REGINALD WESTMORE SPENCE. He was the son of Ernest Spence, One Tree Corner, Guildford, Surrey, and was born in 1886. From Epsom College he went to Westminster Hospital, and obtained the diplomas of M.R.C.S.Eng. and L.R.C.P.Lond. in 1913, was appointed medical officer under the Colonial Office, and was medical officer in charge of the hospital at Nakuru.

SURGEON-MAJOR-GENERAL CHARLES HERVÉ GIRAUD, A.M.S. (retired), who died as a result of a street accident at Fulham on May 10th, was born at Sevenoaks in 1834, and received his medical education at St. George's Hospital. Qualifying M.R.C.S.Eng. in 1858, he joined the Army Medical Service, and served at first as assistant surgeon on the staff, but was soon appointed to the 31st Regiment of Foot (the Huntingdonshire Regiment), now merged into the East Surrey Regiment. He became

surgeon-major in 1873, brigade surgeon in 1887, deputy surgeon-general in 1889, and surgeon-major-general in 1894, being placed on half-pay in 1896. He saw much active service, serving in the Indian Mutiny with a flying column in the North-West Provinces, 1858–59. He was present at Sissaghat, and had the medal. In 1860 he was in China with the 31st Regiment, and was present at Sinho and Taku, for which he had the medal with clasp for the Taku forts. From 1863 to 1864 he served against the Taepings, and was present at the storming of Kahding, Najow, Tsinpoo, and Nansiang. In 1879 he served with the 2nd Brigade in the Zulu war, and subsequently was P.M.O. to Clarke's column. He had the South African 1879–1881 medal with clasp.

Universities and Colleges.

UNIVERSITY OF LEEDS.

Chair of Pathology and Bacteriology.

AT the meeting of the council on June 19th, 1918, Captain M. J. Stewart, M.B., M.R.C.P., was elected Professor of Pathology and Bacteriology. Professor Stewart graduated in honours at the University of Glasgow in 1907 and was awarded the Brunton Memorial Prize as the most distinguished graduate in medicine of the year. After holding several hospital appointments in Glasgow, he was, in 1910, appointed clinical pathologist at the Leeds General Infirmary, and, in 1912, honorary demonstrator in clinical pathology at Leeds University. He received a commission in the R.A.M.C.(T.) in May, 1915, and has served as pathologist to the East Leeds War Hospital, and in a similar capacity in France. A few months ago he was recalled to Leeds and, at the request of the University Council, undertook the acting headship of the department of pathology and bacteriology. Professor Stewart has done much original research on pathological questions, including malignant disease.

ST. ANDREWS UNIVERSITY.

THE following candidates have been approved at the examination indicated:

THIRD M.B., CH.B.—Mildred Clark, Bessie M. Davidson, Jean H. D. Fleming, Mabel Hodgson, Frances L. Knipe, Margherita M. Lilley, Kathleen M. Lyon, J. B. Macdonald, G. J. Murray, W. G. Robertson, Amelia MacD. Thoms, Olive M. Whyte.

Medical News.

TO perpetuate the memory of the late Lieut.-Colonel Henry Moore, R.A.M.C., whose death from wounds we recorded last week, it has been decided to raise a fund to endow a bed in the Royal City of Dublin Hospital, where he spent the greater part of his professional life as a student, house-surgeon, and visiting surgeon. Many subscriptions have been promised, and those willing to assist in organizing the fund are asked to communicate with Mr. G. Jameson Johnston, F.R.C.S., Royal City of Dublin Hospital, Dublin.

THE London units of the Scottish Women's Hospitals for foreign service have decided that the memorial which they are raising to commemorate the late Dr. Elsie Inglis, shall take the form of a chair of medicine to be founded at Belgrade when the university in that city is reconstituted after the war. A London memorial fund for this purpose will be inaugurated at a meeting at the Mansion House, on Friday, July 5th. Applications for tickets should be made to 66, Victoria Street, S.W.1.

DR. NORMAN MOORE, president of the Royal College of Physicians of London, has been appointed a Radcliffe trustee.

DR. T. W. N. BARLOW (M.O.H. Wallasey), Dr. H. J. Cates (M.O.H. St. Helens), and Captain Frederick George Rose, R.A.M.C.T. officer commanding sanitary sections, Bagdad, have been elected Fellows of the Royal Sanitary Institute.

DR. F. COLE MADDEN, professor of surgery, Egyptian Government Medical School, and Mr. William M. Colles, professor, School of Medicine, Cairo, have been appointed members of the Order of the Nile of the third and fourth class respectively, conferred upon them by the Sultan of Egypt in recognition of valuable services rendered.

THE museum of the Royal College of Surgeons has been enriched this month by a fine series of instruments once the property of the late Mr. Arthur Durham, surgeon to Guy's Hospital, the donor being his son, Dr. Herbert Durham of Hereford. The series includes staphylorrhaphy, tracheotomy, laryngotomy, and other knives, scissors, etc., devised and used by Mr. Durham, an auto-laryngoscopic mirror which he received from Señor Garcia, and Aston Key's own lithotomy case with a set of the straight staffs which he made use of with such dexterity. It will be placed next to the similar case and instruments used by his illustrious uncle, Sir Astley Cooper, when he cut for stone, presented by Mr. Edward Cock in 1872.

THE Local Government Board has issued a memorandum to tribunals, directing that special consideration should be given to the cases of the officials of local authorities (including public health, asylum, and Poor Law authorities), in view of the raising of the military age and of the increasing duties of local authorities. The efficient performance of these duties is of high importance at the present time, and a sufficient experienced staff is essential. Tribunals are directed to deal with each case on its merits, bearing in mind the standards which have now to be applied. A communication on this subject will also be sent by the Minister of National Service to National Service representatives.

AT the annual Austrian Tuberculosis Day the president, Count Larisch, stated that before the war not more than 800 beds were provided for tuberculosis in Austria. By the end of December, 1917, there were nearly 5,600 beds, apart from the beds occupied by tuberculous soldiers. There were, moreover, 450 beds for the sunlight and high-altitude treatment of surgical tuberculosis, as well as a great number of beds in the special departments of public hospitals. Formerly there were only ten dispensaries; in a few months there would be 50. The State had allocated 13½ million kronen in 1917 to this work.

A SPECIAL penal cases meeting of the Central Midwives Board was held on June 19th, Sir Francis Champneys in the chair. Of the thirteen midwives cited to appear seven were struck off the roll, one was censured, and one cautioned. Most of the charges arose out of failure to advise medical aid in cases of departure from normal conditions, such as delay in expulsion of the placenta and membranes, ophthalmia, excessive haemorrhage. One was a case of insobriety, and there were the usual charges of want of cleanliness and not taking and recording the pulse and temperature. At the ordinary monthly meeting on June 20th a communication was reported from the Acting Registrar of the General Medical Council with reference to the action of a medical practitioner who had given a certificate to an uncertified woman certifying that she was "quite capable of undertaking the duties of an ordinary midwife." It was decided that the chairman be asked to communicate with the President of the General Medical Council and to express the views of the Board. Twenty-five midwives were removed from the roll on their own application. The Secretary reported on the introduction of the Midwives Bill, 1918, into the House of Lords.

OWING to the large increase in the demand of the forces for registered dentists their position has become similar to that of medical practitioners, and a special tribunal, known as the Dental Tribunal, has been appointed to deal with the best distribution of the professional services of dentists between the military and civilian requirements. The Minister of National Service has agreed that a registered dentist shall not be called up for military service except for dental work as a commissioned officer, provided that any registered dentist who is left in civilian life is engaged in dental work which, in the opinion of the dental tribunal, is of urgent national importance. The dental tribunal contains representatives of the dental profession, and includes the members of the Dental Service Committee, who have already rendered valuable service in dealing with the cases of registered dentists. From July 1st applications on whatever grounds for the grant, renewal, or review of certificates of exemption on behalf of registered dentists will be dealt with by the Dental Tribunal, whose address is 19, Hanover Square, London, W.1. The powers, functions, and procedure of the tribunal will be the same as those of an appeal tribunal. The Local Government Board has constituted the tribunal as follows: Dr. G. S. Buchanan, C.B., chairman; Dr. N. G. Bennett, Mr. H. R. F. Brooks, Mr. G. G. Campion, Dr. W. H. Dolamore, Dr. W. J. O'Donovan, Mr. N. Bishop Harman, F.R.C.S., Mr. Walter Harrison, Mr. M. F. Hopson, Mr. W. B. Paterson, F.R.C.S., Mr. E. H. Pelham, Mr. Rees Price, Dr. C. F. Rilot, and Dr. J. Smith Whitaker.

THE result of an inquiry by the Prussian Home Minister into the merits of salvarsan is said to be very favourable. Reports on over 75,000 cases treated were given, and of the fatalities more or less traceable to salvarsan, many occurred when the drug was first introduced, and its effects were not properly understood. The incidence of deafness was 0.0026 per cent., of blindness 0.0013 per cent.

AT a meeting of the London Association of Medical Women on June 4th, with Lady Barrett in the chair, Dr. Mary Scharlieb, in opening a discussion on medical etiquette, said that doctors had two main duties towards their patients—to secure adequate treatment and to avoid inflicting unnecessary distress of mind or body. Speaking more especially of venereal disease, she said that since adequate treatment was lengthy, troublesome, and expensive patients were apt to break it off too soon unless the doctor cultivated their confidence, and explained the effects of insufficient treatment. In deciding whether to give a patient the straightforward diagnosis, each case should be considered on its merits, but if the patient asked a direct question, she should be given a straight clear answer. To the question, Did my husband infect me? one could honestly reply that it was impossible to say. The husband should always be seen, and when necessary advised as to obtaining treatment. Suspected carelessness or ignorance on the part of other practitioners should never be exposed to the patient. A full report should be furnished to the doctor sending a patient, but the patient's secret should not be divulged to any one else without her permission. Where there was danger of infection the patient's permission to inform her father, husband, or employer should be sought. Cases of approaching marriage offered difficulty, for the doctor was liable to prosecution for slander if he mentioned the presence of venereal disease, and for libel if he wrote about it. The Royal Commission was in favour of making this a privileged communication. Lady Barrett thought it wrong to inform a husband that his wife had venereal disease without her full knowledge and consent, and vice versa. In cases sent by midwives to antenatal clinics, the patient's permission should be sought to inform the midwife if venereal disease existed. Care was necessary in these cases to avoid liability for slander or libel. Dr. Jane Walker pointed out that the diagnosis was the patient's own affair, and no business of relations, friends, or employers who paid the fees. Dr. Eleanor Lowry, discussing the relations between hospitals, advocated the establishment of some central place at which patients could apply for treatment, and whence they could be referred to the most suitable hospital. A list of unoccupied beds at the various hospitals could be kept there to facilitate the admission of acute cases.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

THE acting medical officer for the county of Montgomery (Newtown, North Wales) desires to hear of a modern hospital for infectious diseases containing eighteen to twenty beds.

LETTERS NOTES, ETC.

DIPHTHERIAL INFECTION OF WOUNDS.

DR. J. LEWIS THOMAS (Newport, Mon.) writes: The paragraph on page 676 recalls a clinical lecture by the late Mr. Lockwood of St. Bartholomew's, in which he describes an incised mammary abscess which would not heal. It was noticed that a child in a cot alongside the woman's bed had a chronic nasal catarrh, and a swab was taken and found to carry *B. diphtheriae*. Injection of antitoxin was very quickly followed by healing of the chronic wound.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

A COUNTRY MEMBER writes: In the JOURNAL of June 1st I was glad to see another letter of protest by "An Old Member" against the arbitrary action of the committee of the above society nullifying their own previous statements and promises and thereby causing, after this year, a serious monetary loss to old members who had trusted them—as it now appears—in vain. It is to be hoped some energetic member living in or near London will give his name and address so that all who are dissatisfied may send their names and addresses and arrange for a private meeting to discuss the best method of getting this unfair resolution rescinded. A list of members is published by the society.

ONE OF THE OLDEST MEMBERS writes: As another very old member of the Medical Sickness and Accident Society, may I add my protest against the action which the society proposes to take with regard to the bonus? Let the society make any terms it likes with new members, but it is certainly, to put it mildly, a breach of faith and scarcely honest to attempt to deprive the members of many years' standing of their expected and promised bonus. For over thirty years I have done all in my power to persuade my brother practitioners to join the society, but if this unfair action is allowed to pass I shall most certainly in future do all I can to dissuade them.

THE CHIEFTAINSHIP OF THE CLAN FARQUHARSON.

A CORRESPONDENT writes: Dr. Farquharson regarded himself and was generally recognized as the chieftain of his clan. In his volume of reminiscences, *In and Out of Parliament*, he tells of a visit to Sir Henry Campbell-Bannerman at Belmont Castle in Perthshire, in December, 1897, at which a feature of the entertainment was "some vigorous reels." This was celebrated in verse by Sir Charles Cameron, M.P., who sang:

> Miss Ruxton down in Italy had never seen a kilt,
> So Finzean's laird, The Farquharson, has braced himself intill't,
> And he shows with sporran whisking and skean-dhu on knee
> How a Highland Chief can foot it 'fore a jolly G.C.B.

I remember some years ago at a time of political crisis, when "retaliation" dinners were raging, being present at a dinner in aid of Epsom College. Lord Rosebery, who was in the chair, humorously referred to the difficulty in which he was placed by the presence of some prominent politicians, among whom he specially named the chieftain of the powerful clan Farquharson. Speaking of this afterwards to Dr. Farquharson, I ventured to hint that I was under the impression that his kinsman of Invercauld was the chief of the clan. With the nervous cough that so often prefaced his utterances, and every hair in his moustache bristling with defiance, the laird of Finzean replied: "Invercauld! Why he doesn't even claim it."

A FUNGUS FLY AND COCKROACH KILLER.

IT has long been known, at least in Germany, where it goes by the name of "Fliegenpilz" or "Fliegenschwamm," that the fungus *Amanita muscaria* has insecticide properties, but they seem seldom to have been turned to account. Dr. E. Wildbrand, however, states that in the government of Minsk it is extensively used by the native population. Placed stalk uppermost it is baked for two or three minutes to set free the poisonous juices. The stalk is then broken off and the lamellae strewn with castor sugar, which dissolves in the juice. The bait is put out of reach of any domestic animal, and should not be left near food or kept in a room where cooking is going on. The poison, however, acts so rapidly that the dying fly does not creep far. When the juice has evaporated the sugar ceases to be poisonous, but the toxicity of the bait can be maintained for a few days by adding a little water occasionally. It is also said that if spread out on a large plate the sugary juice kills cockroaches as well as flies.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the week ending June 22nd:

	£	s.	d.
Dr. James Craig	2	2	0
Dr. C. C. Easterbrook ...	1	0	0
Dr. Thomas Guthrie ...	2	2	0
Mr. Percy Hoar*	200	0	0
Mrs. Harrison†	5	0	0
Mrs. de Meray*	0	5	0
Dr. T. M. Cuthbert ...	1	1	0
Dr. W. A. Bond	2	2	0
Anonymous...	0	17	6

* Per Dr. Des Vœux. † Per Sir Rickman Godlee.

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

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